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In the Supreme Court of the United States

OCTOBER TERM, 1952

Nos. 28 and 29

UNITED STATES OF AMERICA, ON THE RELATION OF OSCAR L. CHAPMAN, SECRETARY OF THE INTERIOR, PETITIONER

v.

FEDERAL POWER COMMISSION, VIRGINIA ELECTRIC AND POWER COMPANY, ET AL., RESPONDENTS

AND

VIRGINIA REA ASSOCIATION ET AL., PETITIONERS

v.

FEDERAL POWER COMMISSION, VIRGINIA ELECTRIC AND POWER COMPANY, ET AL., RESPONDENTS

ON WRITS OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FOURTH CIRCUIT

APPENDIX TO PETITIONERS' BRIEF

GREGORY HANKIN,
Counsel for Petitioner, the United States of America, on the relation of Oscar L. Chapman, Secretary of the Interior.

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STATUTES REFERRED TO IN THE BRIEF

TITLE 33, CHAPTER 15—FLOOD CONTROL

§ 701. Flood Control Generally

Laws applicable to works of improvement relating to flood control.—All the provisions of existing law relating to examinations and surveys

and to works of improvement of rivers and harbors shall apply, so far as applicable to examinations and surveys and to works of improvement relating to flood control. And all expenditures of funds appropriated for works and projects relating to flood control shall be made in accordance with and subject to the law governing the disbursement and expenditure of funds appropriated for the improvement of rivers and harbors.

Examinations and surveys; details from Government departments; reports.—All examinations and surveys of projects relating to flood control shall include a comprehensive study of the watershed or watersheds, and the report thereon in addition to any other matter upon which a report is required shall give such data as it may be practicable to secure in regard to (a) the extent and character of the area to be affected by the proposed improvement; (b) the probable effect upon any navigable water or waterway; (c) the possible economical development and utilization of water power; and (d) such other uses as may be properly related to or coordinated with the project. And the heads of the several departments of the Government may, in their discretion, and shall upon the request of the Secretary of War, detail representatives from their respective departments to assist the Engineers of the Army in the study and examination of such watersheds, to the end that duplication of work may be avoided and the various services of the Government economically coordinated therein: *Provided*, That all reports on preliminary examinations hereafter authorized, together with the report of the Board of Engineers for Rivers and Harbors thereon and

the separate report of the representative of any other department, shall be submitted to the Secretary of War by the Chief of Engineers, with his recommendations, and shall be transmitted by the Secretary of War to the House of Representatives, and are hereby ordered to be printed when so made.

Reports by Board of Engineers for Rivers and Harbors.—In the consideration of all works and projects relating to flood control which may be submitted to the Board of Engineers for Rivers and Harbors for consideration and recommendation, said Board shall, in addition to any other matters upon which it may be required to report, state its opinion as to (a) what Federal interest, if any, is involved in the proposed improvement; (b) what share of the expense, if any, should be borne by the United States; and (c) the advisability of adopting the project.

Aiding Committee on Flood Control.—All examinations and reports which may now be made by the Board of Engineers for Rivers and Harbors upon request of the Committee on Rivers and Harbors relating to works or projects of navigation shall in like manner be made upon request of the Committee on Flood Control on all works and projects relating to flood control (Mar. 1, 1917, ch. 144, § 3, 39 Stat. 950).

§ 701a. Same; Declaration of Policy

It is recognized that destructive floods upon the rivers of the United States, upsetting orderly processes and causing loss of life and property, including the erosion of lands, and impairing and obstructing navigation, highways, railroads, and

other channels of commerce between the States, constitute a menace to national welfare; that it is the sense of Congress that flood control on navigable waters or their tributories is a proper activity of the Federal Government in cooperation with States, their political subdivisions, and localities thereof; that investigations and improvements of rivers and other waterways, including watersheds thereof, for flood-control purposes are in the interest of the general welfare; that the Federal Government should improve or participate in the improvement of navigable waters or their tributaries, including watersheds thereof, for flood-control purposes if the benefits to whomsoever they may accrue are in excess of the estimated costs, and if the lives and social security of people are otherwise adversely affected. (June 22, 1936, ch. 688, § 1, 49, Stat. 1570).

§ 701a–1. Same; Definition of "Flood Control"; Jurisdiction of Federal Investigations

The words "flood control" as used in section 701a of this title, shall be construed to include channel and major drainage improvements, and Federal investigations and improvements of rivers and other waterways for flood control and allied purposes shall be under the jurisdiction of and shall be prosecuted by the War Department under the direction of the Secretary of War and supervision of the Chief of Engineers, and Federal investigations of watersheds and measures for run-off and waterflow retardation and soil-erosion prevention on watersheds shall be under the jurisdiction of and shall be prosecuted by the Department of Agriculture under the direction of the

Secretary of Agriculture, except as otherwise provided by Act of Congress (Dec. 22, 1944, ch. 665, § 2, 58 Stat. 889).

§ 701b. Same; Supervision of Secretary of War and Secretary of Agriculture; Reclamation Projects Unaffected

Federal investigations and improvements of rivers and other waterways for flood control and allied purposes shall be under the jurisdiction of and shall be prosecuted by the War Department under the direction of the Secretary of War and supervision of the Chief of Engineers, and Federal investigations of watersheds and measures for run-off and waterflow retardation and soil-erosion prevention on watersheds shall be under the jurisdiction of and shall be prosecuted by the Department of Agriculture under the direction of the Secretary of Agriculture, except as otherwise provided by Act of Congress; and in their reports upon examinations and surveys, the Secretary of War and the Secretary of Agriculture shall be guided as to flood-control measures by the principles set forth in section 701a of this title in the determination of the Federal interests involved: *Provided,* That the foregoing grants of authority shall not interfere with investigations and river improvements incident to reclamation projects that may now be in progress or may be hereafter undertaken by the Bureau of Reclamation of the Interior Department pursuant to any general or specific authorization of law (June 22, 1936, ch. 688, § 2, 49 Stat. 1570; June 28, 1938, ch. 795, § 1, 52 Stat. 1215; Aug. 18, 1941, ch. 377, § 1, 55 Stat. 638).

ACT OF MARCH 3, 1925, SECTION 3, 43 STAT. 1190

* * * * *

SEC. 3. The Secretary of War, through the Corps of Engineers of the United States Army, and the Federal Power Commission are jointly hereby authorized and directed to prepare and submit to Congress an estimate of the cost of making such examinations, surveys, or other investigations as, in their opinion, may be required of those navigable streams of the United States, and their tributaries, whereon power development appears feasible and practicable, with a view to the formulation of general plans for the most effective improvement of such streams for the purposes of navigation and the prosecution of such improvement in combination with the most efficient development of the potential water power, the control of floods, and the needs of irrigation: *Provided,* That no consideration of the Colorado River and its problems shall be included in the consideration or estimate provided herein.

ACT OF JANUARY 21, 1927, SECTION 1, 44 STAT. 1010

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the following works of improvement are hereby adopted and authorized, to be prosecuted under the direction of the Secretary of War and supervision of the Chief of Engineers, in accordance with the plans recommended in the reports hereinafter designated:

* * * * *

Surveys in accordance with House Document Numbered 308, Sixty-ninth Congress, first session, and including in the streams mentioned in said documents the following streams:

Red River, Louisiana, Arkansas, Oklahoma, and Texas.

Yazoo River and tributaries, Mississippi.

Pearl River, Mississippi and Louisiana.

Altamaha and tributaries.

Tributaries of the Warrior, Coosa and Tombigbee Rivers.

FLOOD CONTROL ACT OF 1936, 49 STAT. 1570

SECTION 1. It is hereby recognized that destructive floods upon the rivers of the United States, upsetting orderly processes and causing loss of life and property, including the erosion of lands, and impairing and obstructing navigation, highways, railroads, and other channels of commerce between the States, constitute a menace to national welfare; that it is the sense of Congress that flood control on navigable waters or their tributaries is a proper activity of the Federal Government in cooperation with States, their political subdivisions, and localities thereof; that investigations and improvements of rivers and other waterways, including watersheds thereof, for flood-control purposes are in the interest of the general welfare; that the Federal Government should improve or participate in the improvement of navigable waters or their tributaries, including watersheds thereof, for flood-control purposes if the benefits to whomsoever they may accrue are in excess of the estimated

costs, and if the lives and social security of people are otherwise adversely affected.

SEC. 2. That, hereafter, Federal investigations and improvements of rivers and other waterways for flood control and allied purposes shall be under the jurisdiction of and shall be prosecuted by the War Department under the direction of the Secretary of War and supervision of the Chief of Engineers, and Federal investigations of watersheds and measures for run-off and water-flow retardation and soil erosion prevention on watersheds shall be under the jurisdiction of and shall be prosecuted by the Department of Agriculture under the direction of the Secretary of Agriculture, except as otherwise provided by Act of Congress; and that in their reports upon examinations and surveys, the Secretary of War and the Secretary of Agriculture shall be guided as to flood-control measures by the principles set forth in section 1 in the determination of the Federal interests involved: *Provided,* That the foregoing grants of authority shall not interfere with investigations and river improvements incident to reclamation projects that may now be in progress or may be hereafter undertaken by the Bureau of Reclamation of the Interior Department pursuant to any general or specific authorization of law.

* * * * *

SEC. 6. The Secretary of War is hereby authorized and directed to cause preliminary examinations and surveys for flood control at the following-named localities, and the Secretary of Agriculture is authorized and directed to cause

preliminary examinations and surveys for run-off and waterflow retardation and soil erosion prevention on the watersheds of such localities; the cost thereof to be paid from appropriations heretofore or hereafter made for such purposes: *Provided,* That no preliminary examination, survey, project, or estimate for new works other than those designated in this or some prior Act or joint resolution shall be made: *Provided further,* That after the regular or formal reports made as hereby authorized on any examination, survey, project, or work under way or proposed are submitted to Congress, no supplemental or additional report or estimate shall be made unless authorized by law or by resolution of the Committee on Flood Control of the House of Representatives or the Committee on Commerce of the Senate: *And provided further,* That the Government shall not be deemed to have entered upon any project for the improvement of any waterway mentioned in this Act until the project for the proposed work shall have been adopted by law:

* * * * *

SEC. 7. The Secretary of War is hereby authorized and directed to continue surveys, studies, and reports at the following-named localities, where, according to the surveys and estimates already made, opportunities appear to exist for useful flood-control operations with economical development of hydroelectric power wherever sufficient markets to absorb such power become available, the cost of these surveys to be paid from appropriations heretofore or hereafter

made under the authorization in this Act or subsequent similar Acts:

* * * * *

Reservoirs in Roanoke and Tar Rivers, North Carolina.

* * * * *

FLOOD CONTROL ACT OF 1938, 52 STAT. 1215

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, hereafter, Federal investigations and improvements of rivers and other waterways for flood control and allied purposes shall be under the jurisdiction of and shall be prosecuted by the War Department under the direction of the Secretary of War and supervision of the Chief of Engineers, and Federal investigations of watersheds and measures for run-off and waterflow retardation and soil erosion prevention on watersheds shall be under the jurisdiction of and shall be prosecuted by the Department of Agriculture under the direction of the Secretary of Agriculture, except as otherwise provided by Act of Congress.

* * * * *

SEC. 4. That the following works of improvement for the benefit of navigation and the control of destructive floodwaters and other purposes are hereby adopted and authorized to be prosecuted under the direction of the Secretary of War and supervision of the Chief of Engineers, in accordance with the plans in the respective reports hereinafter designated: *Provided,* That penstocks or other similar facilities adapted to

possible future use in the development of hydroelectric power shall be installed in any dam herein authorized when approved by the Secretary of War upon the recommendation of the Chief of Engineers and of the Federal Power Commission.

* * * * *

Upper Mississippi River Basin

The general comprehensive plan for flood control and other purposes in the Upper Mississippi River Basin, described in Flood Control Committee Document Numbered 1, Seventy-fifth Congress, first session, with such modifications thereof as in the discretion of the Secretary of War and the Chief of Engineers may be advisable, is approved and there is hereby authorized $6,600,000 for reservoirs and $2,700,000 for local flood-protection works on the Upper Mississippi and Illinois Rivers; the reservoirs and local protection projects to be selected and approved by the Chief of Engineers: *Provided,* That this authorization shall include the enlargement and extension of a system of levees located on the south side of the Sangamon River east of the town of Chandlerville, Illinois, as set forth in House Document Numbered 604, Seventy-fifth Congress, third session.

* * * * *

White River Basin

The general comprehensive plan for flood control and other purposes in the White River Basin, as set forth in Flood Control Committee Docu-

ment Numbered 1, Seventy-fifth Congress, first session, with such modifications thereof as in the discretion of the Secretary of War and the Chief of Engineers may be advisable, is approved and for the initiation and partial accomplishment of said plan there is hereby authorized $25,000,000 for reservoirs; the reservoirs to be selected and approved by the Chief of Engineers.

Arkansas River Basin

The general comprehensive plan for flood control and other purposes in the Arkansas River Basin, as set forth in Flood Control Committee Document Numbered 1, Seventy-fifth Congress, first session, with such modifications thereof as in the discretion of the Secretary of War and the Chief of Engineers may be advisable, is approved, and for the initiation and partial accomplishment of said plan there is hereby authorized $21,000,000 for reservoirs; the reservoirs to be selected and approved by the Chief of Engineers: *Provided*, That this authorization shall include the Canton Reservoir on the North Canadian River in Oklahoma, as set forth in House Document Numbered 569, Seventy-fifth Congress, third session.

For the purposes of preventing or controlling floods, and of facilitating navigation on the Ouachita River in Arkansas and Louisiana, authority is hereby conferred on the Secretary of War and the Chief of Engineers to participate on behalf of the United States in the cost of construction of a multiple-use reservoir at the Blakely Mountain site on the Ouachita River in Arkansas, according

to plans and estimates duly approved by the Secretary of War and the Chief of Engineers, pursuant to a resolution of the Committee on Flood Control of the House of Representatives, adopted May 11, 1938: *Provided*, That the sum of money expended in said participation shall not exceed a just and reasonable proportion of the total cost of the multiple-use reservoir as allocated according to the proportionate storage capacity reserved or utilized for flood-control purposes, not exceed the estimated value of the flood control purposes, nor exceed the estimated value of the flood control to be achieved, nor in any event to exceed the sum of $2,000,000; *Provided further*, That the Secretary of War is authorized to pay for said participation in said multiple-use reservoir out of any funds authorized for flood control in the Arkansas River Basin when the flood-control portion of the project is completed: *Provided further*, That the Federal Power Commission is hereby authorized and directed to retain and exercise the authority heretofore conferred on it by law with respect to that portion of the project constructed and operated for power purposes: *Provided further*, That the improvements shall be operated and maintained at the expense of the private parties constructing said project in accordance with regulations approved by the Secretary of War and the Chief of Engineers with respect to navigation and flood control and by the Federal Power Commission with respect to the operations for power which regulations shall provide for payments to the United States for the use for power purposes of any flood waters temporarily stored for flood con-

trol in the flood control portion of the reservoir, at such rates as the Federal Power Commission shall determine to be fair and reasonable.

* * * * * *

SEC. 6. The Secretary of War is hereby authorized and directed to cause preliminary examinations and surveys for flood control including floods aggravated by or due to tidal effect at the following-named localities, and the Secretary of Agriculture is authorized and directed to cause preliminary examinations and surveys for run-off and waterflow retardation and soil-erosion prevention on the watersheds of such localities; the cost thereof to be paid from appropriations heretofore or hereafter made for such purposes: *Provided*, That no preliminary examination, survey, project, or estimate for new works other than those designated in this or some prior Act or joint resolution shall be made: *Provided further*, That after the regular or formal reports made as hereby authorized on any examination, survey, project, or work under way or proposed are submitted to Congress, no supplemental or additional report or estimate shall be made unless authorized by law or by resolution of the Committee on Flood Control of the House of Representatives or the Committee on Commerce of the Senate: *And provided further*, That the Government shall not be deemed to have entered upon any project for the improvement of any waterway mentioned in this Act until the project for the proposed work shall have been adopted by law:

* * * * * *

Smith River and its tributaries, Virginia and North Carolina.

* * * * * *

FLOOD CONTROL ACT OF 1941, 55 STAT. 638

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That hereafter Federal investigations and improvements of rivers and other waterways for flood control and allied purposes shall be under the jurisdiction of and shall be prosecuted by the War Department under the direction of the Secretary of War and supervision of the Chief of Engineers, and Federal investigations of watersheds and measures for runoff and waterflow retardation and soil-erosion prevention on watersheds shall be under the jurisdiction of and shall be prosecuted by the Department of Agriculture under the direction of the Secretary of Agriculture, except as otherwise provided by Act of Congress.

* * * * * *

SEC. 3. That the following works of improvement for the benefit of navigation and the control of destructive floodwaters and other purposes are hereby adopted and authorized in the interest of national security and the stabilization of employment, and shall be prosecuted as speedily as may be consistent with budgetary requirements, under the direction of the Secretary of War and the supervision of the Chief of Engineers in accordance with the plans in the respective reports hereinafter designated and subject to the conditions set forth therein: *Provided,* That penstocks

or other similar facilities adapted to possible future use in the development of hydroelectric power shall be installed in any dam herein authorized when approved by the Secretary of War upon the recommendation of the Chief of Engineers and of the Federal Power Commission:

* * * * *

White River Basin

In addition to previous authorizations, there is hereby authorized to be appropraited the sum of $24,000,000 for the prosecution of the comprehensive plan approved in the Act of June 28, 1938, for the White River Basin in Missouri and Arkansas, including the projects for flood control and other purposes recommended by the Chief of Engineers in House Document Numbered 917, Seventy-sixth Congress, third session, and the modifications in the Norfolk Reservoir project recommended by the Chief of Engineers in House Document Numbered 290, Seventy-seventh Congress, first session.

The projects for local flood protection on the White River, on the east side between Augusta and Clarendon, Arkansas, and at the town of De Valls Bluff, Arkansas, are hereby authorized to be constructed substantially in accordance with the recommendation of the Chief of Engineers in House Document Numbered 98, Seventy-sixth Congress, first session, at an estimated cost of $2,847,500.

* * * * *

Los Angeles-San Gabriel River Basin and Ballona Creek

The general comprehensive plan for flood control and other purposes in the basins of the Los Angeles and San Gabriel Rivers and Ballona Creek as set forth in House Document Numbered 838, Seventy-sixth Congress, third session, is approved, and in addition to previous authorizations there is hereby authorized $25,000,000 for the partial accomplishment of that plan.

* * * * * *

RECLAMATION PROJECT ACT OF 1939, 53 STAT. 1187

SEC. 9. (a) No expenditures for the construction of any new project, new division of a project, or new supplementary works on a project shall be made, nor shall estimates be submitted therefor, by the Secretary until after he has made an investigation thereof and has submitted to the President and to the Congress his report and findings on—

(1) the engineering feasibility of the proposed construction;

(2) The estimated cost of the proposed construction;

(3) the part of the estimated cost which can properly be allocated to irrigation and probably be repaid by the water users;

(4) the part of the estimated cost which can properly be allocated to power and probably be returned to the United States in net power revenues;

(5) the part of the estimated cost which can properly be allocated to municipal water supply

or other miscellaneous purposes and probably be returned to the United States.

If the proposed construction is found by the Secretary to have engineering feasibility and if the repayable and returnable allocations to irrigation, power, and municipal water supply or other miscellaneous purposes found by the Secretary to be proper, together with any allocation to flood control or navigation made under subsection (b) of this section, equal the total estimated cost of construction as determined by the Secretary, then the new project, new division of a project, or supplemental works on a project, covered by his findings, shall be deemed authorized and may be undertaken by the Secretary. If all such allocations do not equal said total estimated cost, then said new project, new division, or new supplemental works may be undertaken by the Secretary only after provision therefor has been made by Act of Congress enacted after the Secretary has submitted to the President and the Congress the report and findings involved.

FLOOD CONTROL ACT OF 1944, 58 STAT. 887

* * * * *

(c) The Secretary of the Interior, in making investigations of and reports on works for irrigation and purposes incidental thereto shall, in relation to an affected State or States (as defined in paragraph (a) of this section), and to the Secretary of War, be subject to the same provisions regarding investigations, plans, proposals, and reports as prescribed in paragraph (a) of this section for the Chief of Engineers and the Secretary of War. In the event a submission of views and

recommendations, made by an affected State or by the Secretary of War pursuant to said provisions, sets forth objections to the plans or proposals covered by the report of the Secretary of the Interior, the proposed works shall not be deemed authorized except upon approval by an Act of Congress; and subsection 9 (a) of the Reclamation Project Act of 1939 (53 Stat. 1187) and subsection 3 (a) of the Act of August 11, 1939 (53 Stat. 1418), as amended, are hereby amended accordingly.

SEC. 2. That the words "flood control" as used in section 1 of the Act of June 22, 1936, shall be construed to include channel and major drainage improvements, and that hereafter Federal investigations and improvements of rivers and other waterways for flood control and allied purposes shall be under the jurisdiction of and shall be prosecuted by the War Department under the direction of the Secretary of War and supervision of the Chief of Engineers, and Federal investigations of watersheds and measures for run-off and water-flow retardation and soil-erosion prevention on watersheds shall be under the jurisdiction of and shall be prosecuted by the Department of Agriculture under the direction of the Secretary of Agriculture, except as otherwise provided by Act of Congress.

* * * * *

SEC. 5. Electric power and energy generated at reservoir projects under the control of the War Department and in the opinion of the Secretary of War not required in the operation of such projects shall be delivered to the Secretary of the Interior, who shall transmit and dispose of such

shall be prosecuted by the War Department and the Department of the Interior as speedily as may be consistent with budgetary requirements.

(b) The general comprehensive plan for flood control and other purposes in the Missouri River Basin approved by the Act of June 28, 1938, as modified by subsequent Acts, is hereby expanded to include the works referred to in paragraph (a) to be undertaken by the War Department; and said expanded plan shall be prosecuted under the direction of the Secretary of War and supervision of the Chief of Engineers.

(c) Subject to the basin-wide findings and recommendations regarding the benefits, the allocations of costs and the repayments by water users, made in said House and Senate documents, the reclamation and power developments to be undertaken by the Secretary of the Interior under said plans shall be governed by the Federal Reclamation Laws (Act of June 17, 1902, 32 Stat. 388, and Acts amendatory thereof or supplementary thereto), except that irrigation of Indian trust and tribal lands, and repayment therefor, shall be in accordance with the laws relating to Indian lands.

(d) In addition to previous authorizations there is hereby authorized to be appropriated the sum of $200,000,000 for the partial accomplishment of the works to be undertaken under said expanded plans by the Corps of Engineers.

(e) The sum of $200,000,000 is hereby authorized to be appropriated for the partial accomplishment of the works to be undertaken under said plans by the Secretary of the Interior.

SEC. 10. That the following works of improvement for the benefit of navigation and the control of destructive flood waters and other purposes are hereby adopted and authorized in the interest of the national security and with a view toward providing an adequate reservoir of useful and worthy public works for the post-war construction program, to be prosecuted under the direction of the Secretary of War and supervision of the Chief of Engineers in accordance with the plans in the respective reports hereinafter designated and subject to the conditions set forth therein: *Provided,* That the necessary plans, specifications, and preliminary work may be prosecuted on any project authorized in this Act to be constructed by the War Department during the war, with funds from appropriations heretofore or hereafter made for flood control, so as to be ready for rapid inauguration of a post-war program of construction: *Provided further,* That when the existing critical situation with respect to materials, equipment, and manpower no longer exists, and in any event not later than immediately following the cessation of hostilities in the present war, the projects herein shall be initiated as expeditiously and prosecuted as vigorously as may be consistent with budgetary requirements: *And provided further,* That penstocks and other similar facilities adapted to possible future use in the development of hydroelectric power shall be installed in any dam authorized in this Act for construction by the War Department when approved by the Secre-

power and energy in such manner as to encourage the most widespread use thereof at the lowest possible rates to consumers consistent with sound business principles, the rate schedules to become effective upon confirmation and approval by the Federal Power Commission. Rate schedules shall be drawn having regard to the recovery (upon the basis of the application of such rate schedules to the capacity of the electric facilities of the projects) of the cost of producing and transmitting such electric energy, including the amortization of the capital investment allocated to power over a reasonable period of years. Preference in the sale of such power and energy shall be given to public bodies and cooperatives. The Secretary of the Interior is authorized, from funds to be appropriated by the Congress, to construct or acquire, by purchase or other agreement, only such transmission lines and related facilities as may be necessary in order to make the power and energy generated at said projects available in wholesale quantities for sale on fair and reasonable terms and conditions to facilities owned by the Federal Government, public bodies, cooperatives, and privately owned companies. All moneys received from such sales shall be deposited in the Treasury of the United States as miscellaneous receipts.

* * * * *

SEC. 9. (a) The general comprehensive plans set forth in House Document 475 and Senate Document 191, Seventy-eighth Congress, second session, as revised and coordinated by Senate Document 247, Seventy-eighth Congress, second session, are hereby approved and the initial stages recommended are hereby authorized and

tary of War on the recommendation of the Chief of Engineers and the Federal Power Commission.

* * * * * *

Roanoke River Basin

The general plan for the comprehensive development of the Roanoke River Basin for flood control and other purposes recommended by the Chief of Engineers in House Document Numbered 650, Seventy-eighth Congress, second session, is approved and the construction of the Buggs Island Reservoir on the Roanoke River in Virginia and North Carolina, and the Philpott Reservoir on the Smith River in Virginia, are hereby authorized substantially in accordance with the recommendations of the Chief of Engineers in that report at an estimated cost of $36,140,000.

* * * * * *

Savannah River Basin

The general plan for the comprehensive development of the Savannah River Basin for flood control and other purposes recommended by the Chief of Engineers in House Document Numbered 657, Seventy-eighth Congress, second session, is approved and the construction of the Clark Hill Reservoir on the Savannah River in South Carolina and Georgia, is hereby authorized substantially in accordance with the recommendations of the Chief of Engineers in that report at an estimated cost of $35,300,000.

* * * * * *

White River Basin

In addition to previous authorizations, there is hereby authorized to be appropriated the sum of $45,000,000 for the prosecution of the comprehensive plan approved in the Act of June 28, 1938, as modified by the Act approved August 18, 1941, for the White River Basin.

Upper Mississippi River Basin

In addition to previous authorizations, there is hereby authorized to be appropriated the sum of $10,000,000 for the prosecution of the comprehensive plan approved in the Act of June 28, 1938, for the Upper Mississippi River Basin, including the project for the Red Rock Dam on the Des Moines River for flood control and other purposes, substantially in accordance with the recommendations of the Chief of Engineers in House Document Numbered 651, Seventy-eighth Congress, second session, at an estimated cost of $15,000,000.

* * * * *

SEC. 11. The Secretary of War is hereby authorized and directed to cause preliminary examinations and surveys for flood control and allied purposes, including channel and major drainage improvements, to be made under the direction of the Chief of Engineers, in drainage areas of the United States and its Territorial possessions, which include the following named localities, and the Secretary of Agriculture is authorized and directed to cause preliminary examinations and surveys for runoff and waterflow retardation and soil-erosion prevention on

such drainage areas; the cost thereof to be paid from appropriations heretofore or hereafter made for such purposes: *Provided,* That after the regular or formal reports made on any examination, survey, project, or work under way or proposed are submitted to Congress, no supplemental or additional report or estimate shall be made unless authorized by law except that the Secretary of War may cause a review of any examination or survey to be made and a report thereon submitted to the Congress if such review is required by the national defense or by changed physical or economic conditions: *And provided further,* That the Government shall not be deemed to have entered upon any project for the improvement of any waterway or harbor mentioned in this Act until the project for the proposed work shall have been adopted by law:

* * * * * *

SEC. 13. That the following works of improvement for runoff and water-flow retardation, and soil-erosion prevention, are hereby adopted and authorized in the interest of the national security and with a view toward an adequate reservoir of useful and worthy public works for the postwar construction program to be prosecuted by the Department of Agriculture, under the direction of the Secretary of Agriculture, in accordance with the plans of the respective reports hereinafter designated and subject to the conditions set forth therein: *Provided,* That the necessary plans and preliminary work may be prosecuted during the war with funds from appropriations heretofore or hereafter made for such works so as to be ready

for rapid inauguration of postwar construction: *Provided further,* That when the existing critical situation with respect to materials, equipment, and manpower, no longer exists and in any event not later than immediately following the cessation of hostilities in the present war, the projects herein shall be initiated as expeditiously and prosecuted as vigorously as may be consistent with budgetary requirements: *Provided further,* That nothing in this section shall be construed as approving or authorizing the acquisition of any land by the Federal Government until the legislature of the State in which the land lies shall have consented to the acquisition of lands by the United States for the purposes within the scope of this section: *Provided further,* That there shall be paid annually to the county in which any lands acquired under this section may lie, a sum equal to 1 per centum of the purchase price paid for the lands acquired in that county or, if not acquired by purchase, 1 per centum of their valuation at the time of their acquisition.

Los Angeles River Basin

The program on the Los Angeles River watershed is hereby approved substantially in accordance with the recommendation of the Under Secretary of Agriculture in House Document Numbered 426, Seventy-seventh Congress, first session, at an estimated cost to the United States of $8,380,000.

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RIVERS AND HARBORS ACT OF MARCH 2, 1945,
59 STAT. 10

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SEC. 2. The following works of improvement of rivers, harbors, and other waterways are hereby adopted and authorized in the interest of national security and the stabilization of employment, and shall be prosecuted as speedily as may be consistent with budgetary requirements, under the direction of the Secretary of War and supervision of the Chief of Engineers, in accordance with the plans in the respective reports hereinafter designated and subject to the conditions set forth therein: *Provided,* That no project herein authorized shall be appropriated for or constructed until six months after the termination of the present wars in which the United States is engaged unless the construction of such project has been recommended by an authorized defense agency and approved by the President as being necessary or desirable in the interest of the national defense and security, and the President has notified the Congress to that effect: *Provided further,* That penstocks or other similar facilities adapted to possible future use in the development of hydroelectric power shall be installed in any dam herein authorized when approved by the Secretary of War upon the recommendation of the Chief of Engineers and of the Federal Power Commission, and such recommendations shall be based upon consideration of the proper utilization and conservation in the public interest of the resources of the region:

* * * * * *

Alabama-Coosa River, Alabama: Initial and ultimate development of the Alabama-Coosa River and tributaries for navigation, flood control, power development, and other purposes, as outlined in House Document Numbered 414, Seventy-seventh Congress, is hereby authorized substantially in accordance with the plans being prepared by the Chief of Engineers with such modifications thereof from time to time as in the discretion of the Secretary of War and the Chief of Engineers may be advisable for the purpose of increasing the development of hydroelectric power; and that for the initiation and accomplishment of the ultimate plan appropriations are authorized in such amounts as Congress may from time to time determine to be advisable the total of such appropriations not to exceed the sum of $60,000,000. The aforesaid authorization and approval shall include authorities for all powerhouses, power machinery, and appurtenances found to be desirable by the Secretary of War upon the recommendation of the Chief of Engineers and the Federal Power Commission;

* * * * *

SEC. 6. The Secretary of War is hereby authorized and directed to cause preliminary examinations and surveys to be made at the following-named localities, the cost thereof to be paid from appropriations heretofore or hereafter made for such purposes: *Provided*, That no preliminary examination, survey, project, or estimate for new works other than those designated in this or some prior Act or joint resolution shall be made: *Provided further*, That after the regular or formal reports made as required by law on any examina-

tion, survey, project, or work under way or proposed are submitted no supplemental or additional report or estimate shall be made unless authorized by law: *Provided further,* That the Government shall not be deemed to have entered upon any project for the improvement of any waterway or harbor mentioned in this Act until the project for the proposed work shall have been adopted by law: *Provided further,* That reports of surveys on beach erosion and shore protection shall include an estimate of the public interests involved, and such plan of improvement as is found justified, together with the equitable distribution of costs in each case: *And provided further,* That this section shall not be construed to interfere with the performance of any duties vested in the Federal Power Commission under existing law:

* * * * *

RIVERS AND HARBORS ACT OF JULY 24, 1946,
60 STAT. 634

* * * * *

SEC. 7. The Secretary of War is hereby authorized and directed to cause preliminary examinations and surveys to be made at the following-named localities, the cost thereof to be paid from appropriations heretofore or hereafter made for such purposes: *Provided,* That no preliminary examination, survey, project, or estimate for new works other than those designated in this or some prior Act or joint resolution shall be made: *Provided further,* That after the regular or formal reports made as required by law on any examination, survey, project, or work under way or proposed are submitted no supplemental or additional report or estimate shall be made unless authorized

by law: *Provided further,* That the Government shall not be deemed to have entered upon any project for the improvement of any waterway or harbor mentioned in this Act until the project for the proposed work shall have been adopted by law: *Provided further,* That reports of surveys on beach erosion and shore protection shall include an estimate of the public interests involved, and such plan of improvement as is found justified, together with the equitable distribution of costs in each case: *And provided further,* That this section shall not be construed to interfere with the performance of any duties vested in the Federal Power Commission under existing law:

* * * * *

RIVERS AND HARBORS ACT OF 1950, 64 STAT. 163

* * * * *

SEC. 110. The Secretary of the Army is hereby authorized and directed to cause preliminary examinations and surveys to be made at the following-named localities, the cost thereof to be paid from appropriations heretofore or hereafter made for such purposes: *Provided,* That no preliminary examination, survey, project, or estimate for new works other than those designated in this title or some prior Act or joint resolution shall be made: *Provided further,* That after the regular or formal reports made as required by law on any examination, survey, project, or work under way or proposed are submitted, no supplemental or additional report or estimate shall be made unless authorized by law: *Provided further,* That the Government shall not be deemed to have entered upon any project for the improvement of any

waterway or harbor mentioned in this title until the project for the proposed work shall have been adopted by law: *Provided further,* That reports of surveys on beach erosion and shore protection shall include an estimate of the public interests involved, and such plan of improvement as is found justified, together with the equitable distribution of costs in each case: *And provided further,* That this section shall not be construed to interfere with the performance of any duties vested in the Federal Power Commission under existing law:

* * * * *

SEC. 204. The following works of improvement for the benefit of navigation and the control of destructive floodwaters and other purposes are hereby adopted and authorized to be prosecuted under the direction of the Secretary of the Army and the supervision of the Chief of Engineers in accordance with the plans in the respective reports hereinafter designated and subject to the conditions set forth therein: *Provided,* That the necessary plans, specifications, and preliminary work may be prosecuted on any project authorized in this title with funds from appropriations heretofore or hereafter made for flood control so as to be ready for rapid inauguration of a construction program: *Provided further,* That the projects authorized herein shall be initiated as expeditiously and prosecuted as vigorously as may be consistent with budgetary requirements: *And provided further,* That penstocks and other similar facilities adapted to possible future use in the development of hydroelectric power shall be in-

stalled in any dam authorized in this Act for construction by the Department of the Army when approved by the Secretary of the Army on the recommendation of the Chief of Engineers and the Federal Power Commission:

* * * * *

Savannah River Basin

There is hereby authorized to be appropriated the sum of $50,000,000 for the construction of the Hartwell project in the general plan for the comprehensive development of the Savannah River Basin, approved in the Act of December 22, 1944, in addition to the authorization for project construction in the Act of December 22, 1944.

FEDERAL POWER ACT

(Federal Water Power Act Approved June 10, 1920, 41 Stat. 1063, as Amended by Title II of the Public Utility Act of 1935, Approved August 26, 1935, 49 Stat. 838)

* * * * *

SEC. 3. The words defined in this section shall have the following meanings for purposes of this Act, to wit:

* * * * *

(11) "project" means complete unit of improvement or development, consisting of a power house, all water conduits, all dams and appurtenant works and structures (including navigation structures) which are a part of said unit, and all storage, diverting, or forebay reservoirs directly connected therewith, the primary line or lines transmitting power therefrom to the point

of junction with the distribution system or with the interconnected primary transmission system, all miscellaneous structures used and useful in connection with said unit or any part thereof, and all water rights, rights-of-way, ditches, dams, reservoirs, lands, or interest in the lands the use and occupancy of which are necessary or appropriate in the maintenance and operation of such unit:

(12) "project works" means the physical structures of a project;

SEC. 4. The Commission is hereby authorized and empowered—

* * * * *

(c) To cooperate with the executive departments and other agencies of State or National Governments in such investigations; and for such purpose the several departments and agencies of the National Government are authorized and directed upon the request of the Commission to furnish such records, papers, and information in their possession as may be requested by the Commission, and temporarily to detail to the Commission such officers or experts as may be necessary in such investigations.

* * * * *

(e) To issue licenses to citizens of the United States or to any association or such citizens, or to any corporation organized under the laws of the United States or any State thereof, or to any State or municipality for the purpose of constructing, operating, and maintaining dams, water conduits, reservoirs, power houses, transmission lines, or other project works necessary

or convenient for the development and improvement of navigation and for the development, transmission, and utilization of power across, along, from or in any of the streams or other bodies of water over which Congress has jurisdiction under its authority to regulate commerce with foreign nations and among the several States, or upon any part of the public lands and reservations of the United States (including the Territories), or for the purpose of utilizing the surplus water or water power from any Government dam, except as herein provided: *Provided,* That licenses shall be issued within any reservation only after a finding by the Commission that the license will not interfere or be inconsistent with the purpose for which such reservation was created or acquired, and shall be subject to and contain such conditions as the Secretary of the department under whose supervision such reservation falls shall deem necessary for the adequate protection and utilization of such reservation: *Provided further,* That no license affecting the navigable capacity of any navigable waters of the United States shall be issued until the plans of the dam or other structures affecting navigation have been approved by the Chief of Engineers and the Secretary of War. Whenever the contemplated improvement is, in the judgment of the Commission, desirable and justified in the public interest for the purpose of improving or developing a waterway or waterways for the use or benefit of interstate or foreign commerce, a

finding to that effect shall be made by the Commission and shall become a part of the records of the Commission: *Provided further,* That in case the Commission shall find that any Government dam may be advantageously used by the United States for public purposes in addition to navigation, no license therefor shall be issued until two years after it shall have reported to Congress the facts and conditions relating thereto, except that this provision shall not apply to any Government dam constructed prior to June 10, 1920: *And provided further,* That upon the filing of any application for a license which has not been preceded by a preliminary permit under subsection (f) of this section, notice shall be given and published as required by the proviso of said subsection.

* * * * *

(g) Upon its own motion to order an investigation of any occupancy of, or evidenced intention to occupy, for the purpose of developing electric power, public lands, reservations, or streams or other bodies of water over which Congress has jurisdiction under its authority to regulate commerce with foreign nations and among the several States by any person, corporation, State or municipality and to issue such order as it may find appropriate, expedient, and in the public interest to conserve and utilize the navigation and water-power resources of the region.

* * * * *

SEC. 7.[1] (*As amended August 26, 1935.*) (a) In issuing preliminary permits hereunder or licenses where no preliminary permit has been issued and in issuing licenses to new licensees under section 15 hereof the Commission shall give preference to applications therefor by States and municipalities, provided the plans for the same are deemed by the Commission equally well adapted, or shall within a reasonable time to be fixed by the Commission be made equally well adapted, to conserve and utilize in the public interest the water resources of the region; and as between other applicants, the Commission may give preference to the applicant the plans of which it finds and determines are best adapted to develop, conserve, and utilize in the public interest the water resources of the region, if it be satisfied as to the ability of the applicant to carry out such plans.

(b) Whenever, in the judgment of the Commission, the development of any water resources for public purposes should be undertaken by the

[1] Prior to its amendment, the second part of Section 7 read as follows:

"SEC. 7. [Act of June 10, 1920.] * * * That whenever, in the judgment of the commission, the development of any project should be undertaken by the United States itself, the commission shall not approve any application for such project by any citizen, association, corporation, State, or municipality, but shall cause to be made such examinations, surveys, reports, plans, and estimates of the cost of the project as it may deem necessary, and shall submit its findings to Congress with such recommendations as it may deem appropriate concerning the construction of such project or completion of any project upon any Government dam by the United States.'"

United States itself, the Commission shall not approve any application for any project affecting such development, but shall cause to be made such examinations, surveys, reports, plans, and estimates of the cost of the proposed development as it may find necessary, and shall submit its findings to Congress with such recommendations as it may find appropriate concerning such development.

* * * * *

SEC. 10. All licenses issued under this Part shall be on the following conditions:

(a) That the project adopted, including the maps, plans, and specifications, shall be such as in the judgment of the Commission will be best adapted to a comprehensive plan for improving or developing a waterway or waterways for the use or benefit of interstate or foreign commerce, for the improvement and utilization of water-power development, and for other beneficial public uses, including recreational purposes; and if necessary in order to secure such plan the Commission shall have authority to require the modification of any project and of the plans and specifications of the project works before approval.

* * * * *

(f) That whenever any licensee hereunder is directly benefited by the construction work of another licensee, a permittee, or of the United States of a storage reservoir or other headwater improvement, the Commission shall require as a condition of the license that the licensee so benefited shall reimburse the owner of such reservoir

or other improvements for such part of the annual charges for interest, maintenance, and depreciation thereon as the Commission may deem equitable. The proportion of such charges to be paid by any licensee shall be determined by the Commission. The licensees or permittees affected shall pay to the United States the cost of making such determination as fixed by the Commission.

Whenever such reservoir or other improvement is constructed by the United States the Commission shall assess similar charges against any licensee directly benefited thereby, and any amount so assessed shall be paid into the Treasury of the United States, to be reserved and appropriated as a part of the special fund for headwater improvements as provided in section 17 hereof.

Whenever any power project not under license is benefited by the construction work of a licensee or permittee, the United States or any agency thereof, the Commission, after notice to the owner or owners of such unlicensed project, shall determine and fix a reasonable and equitable annual charge to be paid to the licensee or permittee on account of such benefits, or to the United States if it be the owner of such headwater improvement.

* * * * *

SEC. 308. (a) Hearings under this Act may be held before the Commission, any member or members thereof or any representative of the Commission designated by it, and appropriate records thereof shall be kept. In any proceeding before it, the Commission, in accordance with such rules

and regulations as it may prescribe, may admit as a party any interested State, State commission, municipality, or any representative of interested consumers or security holders, or any competitor of a party to such proceeding, or any other person whose participation in the proceeding may be in the public interest.

(b) All hearings, investigations, and proceedings under this Act shall be governed by rules of practice and procedure to be adopted by the Commission, and in the conduct thereof the technical rules of evidence need not be applied. No informality in any hearing, investigation, or proceeding or in the manner of taking testimony shall invalidate any order, decision, rule, or regulation issued under the authority of this Act.

SEC. 309. The Commission shall have power to perform any and all acts, and to prescribe, issue, make, amend, and rescind such orders, rules, and regulations as it may find necessary or appropriate to carry out the provisions of this Act. Among other things, such rules and regulations may define accounting, technical, and trade terms used in this Act; and may prescribe the form or forms of all statements, declarations, applications, and reports to be filed with the Commission, the information which they shall contain, and the time within which they shall be filed. Unless a different date is specified therein, rules and regulations of the Commission shall be effective thirty days after publication in the manner which the Commission shall prescribe. Orders of the Commission shall be effective on the date and in the manner which the Commission shall prescribe. For the purposes of its rules and regulations, the Com-

mission may classify persons and matters within its jurisdiction and prescribe different requirements for different classes of persons or matters. All rules and regulations of the Commission shall be filed with its secretary and shall be kept open in convenient form for public inspection and examination during reasonable business hours.

SEC. 311. In order to secure information necessary or appropriate as a basis for recommending legislation, the Commission is authorized and directed to conduct investigations regarding the generation, transmission, distribution, and sale of electric energy, however produced, throughout the United States and its possessions, whether or not otherwise subject to the jurisdiction of the Commission, including the generation, transmission, distribution, and sale of electric energy by any agency, authority, or instrumentality of the United States, or of any State or municipality or other political subdivision of a State. It shall, so far as practicable, secure and keep current information regarding the ownership, operation, management, and control of all facilities for such generation, transmission, distribution, and sale; the capacity and output thereof and the relationship between the two; the cost of generation, transmission, and distribution; the rates, charges, and contracts in respect of the sale of electric energy and its service to residential, rural, commercial, and industrial consumers and other purchasers by private and public agencies; and the relation of any or all such facts to the development of navigation, industry, commerce, and the national defense. The Commission shall report to Congress

the results of investigations made under authority of this section.

* * * * * *

SEC. 313. (a) Any person, State, municipality, or State commission aggrieved by an order issued by the Commission in a proceeding under this Act to which such person, State, municipality, or State commission is a party may apply for a rehearing within thirty days after the issuance of such order. The application for rehearing shall set forth specifically the ground or grounds upon which such application is based. Upon such application the Commission shall have power to grant or deny rehearing or to abrogate or modify its order without further hearing. Unless the Commission acts upon the application for rehearing within thirty days after it is filed, such application may be deemed to have been denied. No proceeding to review any order of the Commission shall be brought by any person unless such person shall have made application to the Commission for a rehearing thereon.

(b) Any party to a proceeding under this Act aggrieved by an order issued by the Commission in such proceeding may obtain a review of such order in the Circuit Court of Appeals of the United States for any circuit wherein the licensee or public utility to which the order relates is located or has its principal place of business, or in the United States Court of Appeals for the District of Columbia, by filing in such court, within sixty days after the order of the Commission upon the application for rehearing, a written petition praying that the order of the Commission be modified or set aside in whole or in part.

A copy of such petition shall forthwith be served upon any member of the Commission and thereupon the Commission shall certify and file with the court a transcript of the record upon which the order complained of was entered. Upon the filing of such transcript such court shall have exclusive jurisdiction to affirm, modify, or set aside such order in whole or in part. No objection to the order of the Commission shall be considered by court unless such objection shall have been urged before the Commission in the application for rehearing unless there is reasonable ground for failure so to do. The finding of the Commission as to the facts, if supported by substantial evidence, shall be conclusive. If any party shall apply to the court for leave to adduce additional evidence, and shall show to the satisfaction of the court that such additional evidence is material and that there were reasonable grounds for failure to adduce such evidence in the proceedings before the Commission, the court may order such additional evidence to be taken before the Commission and to be adduced upon the hearing in such manner and upon such terms and conditions as to the court may seem proper. The Commission may modify its findings as to the facts by reason of the additional evidence so taken, and it shall file with the court such modified or new findings which, if supported by substantial evidence, shall be conclusive, and its recommendation, if any, for the modification or setting aside of the original order. The judgment and decree of the court, affirming, modifying, or setting aside, in whole or in part, any such order of the Commission, shall be final,

subject to review by the Supreme Court of the United States upon certiorari or certification as provided in sections 239 and 240 of the Judicial Code, as amended (U. S. C., title 28, secs. 346 and 347).

* * * * *

FEDERAL POWER COMMISSION

RULES OF PRACTICE AND PROCEDURE

(12 F. R. 8471)

SECTION 1.8. *Intervention*—(a) *Initiation of intervention.*—Participation in a proceeding as an intervener may be initiated as follows:

(1) By the filing of a notice of intervention by a State Commission, including any regulatory body of the State or municipality having jurisdiction to regulate rates and charges for the sale of electric energy, or natural gas, as the case may be, to consumers within the intervening State or municipality.

(2) By order of the Commission upon petition to intervene.

(b) *Who may petition.*—A petition to intervene may be filed by any person claiming a right to intervene or an interest of such nature that intervention is necessary or appropriate to the administration of the statute under which the proceeding is brought. Such right or interest may be:

(1) A right conferred by statute of the United States.

(2) An interest which may be directly affected and which is not adequately represented by existing parties and as to which petitioners may be bound by the Commission's action in the proceed-

ing (the following may have such an interest: consumers served by the applicant, defendant, or respondent; holders of securities of the applicant, defendant, or respondent; and competitors of the applicant, defendant, or respondent).

(3) Any other interest of such nature that petitioner's participation may be in the public interest.

(c) *Form and contents of petitions.*—Petitions to intervene shall set out clearly and concisely the facts from which the nature of the petitioner's alleged right or interest can be determined, the grounds of the proposed intervention, and the position of the petitioner in the proceeding, so as fully and completely to advise the parties and the Commission as to the specific issues of fact or law to be raised or controverted, by admitting, denying or otherwise answering, specifically and in detail, each material allegation of fact or law asserted in the proceeding, and citing by appropriate reference the statutory provisions or other authority relied on. They shall in other respects comply with the requirements of §§ 1.15 and 1.16.

(d) *Filing and service of petitions.*—Petitions to intervene and notices of intervention shall be filed with the Commission within the time provided in any notice of the proceeding or in the order fixing date of hearing, but not less than 10 days before the date set for the commencement of the hearing, if any, except as otherwise specifically permitted by the Commission in extraordinary circumstances for good cause shown. Service shall be made as provided in § 1.17. Where a person has been permitted to intervene notwithstanding his failure to file his petition within the

time prescribed in this paragraph, the Commission or presiding officer may, where the circumstances warrant, admit any exhibit in evidence without requiring additional copies thereof to be produced for such intervener.

(e) *Answers to petitions.*—Any party to the proceeding or staff counsel may file an answer to a petition to intervene, and in default thereof, may be deemed to have waived any objection to the granting of such petition. If made, answers shall be filed within 10 days after the date of service of the petition, but not later than 5 days prior to the date set for the commencement of the hearing, if any, unless for cause the Commission with or without motion shall prescribe a different time. They shall in all other respects conform to the requirements of §§ 1.15 to 1.17, inclusive.

(f) *Notice and action on petitions*—(1) *Notice and service.*—Petitions to intervene, when tendered to the Commission for filing, shall show service thereof upon all participants to the proceeding in conformity with § 1.17 (b).

(2) *Action on petitions.*—As soon as practicable after the expiration of the time for filing answers to such petitions or default thereof, as provided in paragraph (e) of this section, the Commission will grant or deny such petition in whole or in part or may, if found to be appropriate, authorize limited participation. No petitions to intervene may be filed or will be acted upon during a hearing unless permitted by the Commission after opportunity for all parties to object thereto. Only to avoid detriment to the public interest will

any presiding officer tentatively permit participation in a hearing in advance of, and then only subject to, the granting by the Commssion of a petition to intervene.

(g) *Limitation in hearings.*—Where there are two or more interveners having substantially like interests and positions, the Commission or presiding officer may, in order to expedite the hearing, arrange appropriate limitations on the number of attorneys who will be permitted to cross-examine and make and argue motions and objections on behalf of such interveners.

Development of Flood Control and Power Legislation

(An Interpretative Historical Sketch)

Three acts of Congress appear as historical landmarks in the development of flood control and power legislation. They are (A) the Flood Control Act of March 1, 1917, 39 Stat. 950, (B) the Federal Water Power Act of 1920, 41 Stat. 1063, and (C) the Flood Control Act of 1936, 49 Stat. 1570.

(A) THE FLOOD CONTROL ACT OF MARCH 1, 1917

Prior to 1917, there was some legislative recognition of the role which multiple-purpose projects could play in flood control. There was even legislative realization of the fact that flood control could best be accomplished on a river basin or watershed basis, rather than by means of such local improvements as the construction of levees. There was, however, no systematic legislative approach toward the improvement of streams for flood control, although a systematic approach had already been evolved toward the improvement of rivers and harbors for navigation.

In the Act of March 1, 1917, Congress introduced three important concepts: (1) It applied the provisions of law governing investigations and improvements of rivers and harbors to the problems of flood control, (2) it authorized flood con-

trol investigations on a multiple-purpose and watershed basis, and (3) it provided for the submission to Congress of recommendations as to the extent of Federal participation in these developments.

(1) *Application of River and Harbor Legislation to Flood Control*

Section 3 of the Act of March 1, 1917 provided that

> All the provisions of existing law relating to examinations and surveys and to works of improvement of rivers and harbors shall apply, so far as practicable, to examinations and surveys and to works of improvement relating to flood control.

Beginning with the Act of September 19, 1890, 26 Stat. 426, river and harbor legislation had assumed a definite pattern which, with some changes which will be discussed, has continued to date. One section of the act (usually the first section) consisted of an introductory paragraph, providing as follows:

> That the following sums of money be, and are hereby, appropriated, to be paid out of any money in the Treasury not otherwise appropriated, to be immediately available, and to be expended under the direction of the Secretary of War for the construction, completion, repair, and preservation of the public works hereinafter named.

This introductory paragraph was followed by a large number of items, separately paragraphed, naming the improvements and the amounts of money appropriated therefor. Some of the para-

graphs describing the improvements also contained directives or limitations relating to the scope of the improvements, or to contracts to be entered into, or to the expenditure of the funds.

In another section of the act, also consisting of an introductory paragraph followed by a long enumeration, the Secretary of War was directed to cause—

> examinations or surveys, or both, to be made, and the estimated cost of improvement to be estimated, at the following localities.

Such a provision appeared for the first time in Section 8 of the Rivers and Harbors Act of July 13, 1892, 27 Stat. 88, where, after appropriating money for preliminary examinations, contingencies, expenses, *et cetera,* and providing that no preliminary examination, survey, or estimate for new works other than those designated in the Act should be made, it was provided:

> The Government shall not be deemed to have entered upon any project for the improvement of any waterway or harbor mentioned in this Act until funds for the commencement of the proposed work shall have been actually appropriated by law.

This provision was included in all the omnibus rivers and harbors acts until the Act of July 3, 1930, 46 Stat. 918.

The acts specifically provided that no survey should be undertaken until a preliminary examination had been made. If the report upon the preliminary examination indicated that no improvement would be advisable, then no further action was to be taken, unless directed by Con-

gress. If, however, it appeared upon the preliminary examination that an improvement would be advisable, then a survey was to be made, including an estimate of the cost of the improvement, and the reports on both the preliminary examination and on the survey were to be made to the House of Representatives and were ordered to be printed.

In the Rivers and Harbors Act of June 13, 1902, 32 Stat. 331, Congress created the Board of Engineers for Rivers and Harbors, to whom all the reports upon examinations and surveys were to be submitted for review. Beginning with the Act of March 3, 1905, 33 Stat. 1117, Congress specifically provided that the preliminary examinations and surveys were thus to be reviewed and then printed as Congressional documents. Even before this Act, the sections appropriating funds for improvements at times described these improvements by reference to the printed reports. Later, this became the practice, rather than the exception.

Present Pattern of Rivers and Harbors Acts

Until the Act of June 5, 1920, 41 Stat. 1009, the rivers and harbors acts were in the form of appropriation acts. After the reorganization of the Committees of Congress in 1920, resulting in a separation of the legislative and appropriative functions, and after the passage of the Budget and Accounting Act of 1921, 42 Stat. 20, the rivers and harbors acts were no longer passed in this form. Beginning with the Rivers and Harbors Act of September 22, 1922, 42 Stat.

1038, the introductory paragraph of the section dealing with improvements, provided as follows:

> That the following works of improvement are hereby adopted and authorized to be prosecuted under the direction of the Secretary of War and supervision of the Chief of Engineers, in accordance with the plans recommended in the reports hereinafter designated.

Then followed a long list of works, each referring to a Congressional document in which the works were described and recommended. The phrase "adopted and authorized" was explained in the report of Senator Jones of Washington, Chairman of the Committee on Commerce (S. Rep. No. 813, 67th Congress, 2d Session, on H. R. 10766) as follows:

> This is a bill simply adopting certain river and harbor projects and authorizing certain appropriations to be made and to carry them on. No appropriations are made.

There was no change in the provision of the section authorizing investigations, as to when the Government should be deemed to have entered upon a project for improvement. This presented an anomalous situation, especially since Congress at about this time adopted the practice of making lump-sum appropriations. On the one hand, Congress "adopted and authorized" works of improvement to be carried out by the Army Engineers, though without accompanying appropriation of funds; on the other hand, the Government was not to be deemed to have entered upon any "project for the improvement" until appropria-

tions were actually made for the commencement of the work, and when appropriations were made one could not tell which project was entered upon by the Government. This situation was corrected in the Rivers and Harbors Act of July 3, 1930, 46 Stat. 918, where the proviso in the section authorizing investigations and surveys was made to read as follows:

> That the Government shall not be deemed to have entered upon any project for the improvement of any waterway or harbor mentioned in this Act until the project for the proposed work shall have been adopted by law.

In this form, the sections relating to the improvements and the investigations in the rivers and harbors acts have remained to date.

Since 1930, under the established pattern of omnibus river and harbor legislation, each particular river or harbor improvement has been processed as follows:

(a) The Secretary of War is authorized and directed to make a preliminary examination and survey at a given locality, with the proviso that the Government shall not be deemed to have entered upon a project until it is "adopted by law."

(b) A preliminary examination and report thereon are made which is reviewed by the Board of Engineers for Rivers and Harbors. If the Board is of the opinion that the work of improvement should not be undertaken by the United States, no further action may be taken, unless directed by Congress.

(c) If the Board is of the opinion that the work should be undertaken by the United States, a

survey and a report thereon are made, the report is submitted to the Chief of Engineers, and he makes his own report thereon to Congress, transmitting the survey report. These reports are printed as Congressional documents.

(d) If Congress, by a later act, "adopts and authorizes" the recommended work of improvement, it is "adopted by law," and the Government is deemed to have entered upon the project, although appropriations are yet to be made.

This is the pattern which was later carried into flood control legislation, beginning with the Flood Control Act of 1936.

(2) *Scope of Flood Control Investigation*

During the latter part of the nineteenth century, various private enterprises became interested in the construction of dams for the purpose of developing hydroelectric power. Power projects on navigable waters or their tributaries were constructed under permits issued by State authority, until Congress passed the Rivers and Harbors Act of March 3, 1899, 30 Stat. 1151. Section 10 prohibited the construction of dams or other structures in navigable waters of the United States, or any obstructions to their navigable capacity, unless affirmatively authorized by Congress, and then only after approval of the plans by the Secretary of War and the Chief of Engineers. Congress passed a number of special acts consenting to the construction of power dams. The acts, however, did not provide for any definite tenure, but were revocable at will. In these circumstances, private development of hydroelectric power moved very slowly.

Nor was the result different with the passage of the General Dam Act of 1906, 34 Stat. 386. This was a *general* statute authorizing construction of dams on navigable streams, but still without any definite period of tenure. In 1910, this Act was amended, 36 Stat. 593, granting authority to private persons to construct dams for power purposes. The grants were limited to a period not exceeding 50 years, but again the right was reserved in the Government to revoke such grants upon the payment of the value of the project property, exclusive of the value of the grant.

In the General Dam Act of 1910, after providing that the plans and specifications should be subject to the approval of the Secretary of War and the Chief of Engineers, Congress further provided that in acting upon such plans, they should give consideration to "the bearing of said structure upon a comprehensive plan for the development of the waterway * * * with a view to the promotion of its navigable quality and for the full development of water power".

When Congress passed the Flood Control Act of 1917, it provided that the examinations and surveys were to include comprehensive studies of watersheds, and the reports were to include data on

> (a) the extent and character of the area to be affected by the proposed improvement; (b) the probable effect on any navigable water or waterway; (c) the possible economic development and utilization of water power; and (d) such other uses as may be properly related to or coordinated with the project.

Congress expressly authorized and, when requested by the Secretary of War, required the heads of the several departments to participate in these investigations "to the end that duplication of work may be avoided and the various services of the Government economically coordinated therein". Here Congress required that the Chief of Engineers submit all reports on "preliminary examinations hereafter authorized, together with a report of the Board of Engineers for Rivers and Harbors thereon, and the separate report of the representative of any other department", with his recommendations to the Secretary of War, and required the latter to submit the same to the House of Representatives.

In sum and substance, the 1917 Act introduced the principle that the investigations for water resource developments should be not only comprehensive in the sense that they would serve a variety or multiplicity of public uses, but also that the watershed or river basin should constitute the basic unit of development.

(3) *Federal Participation in Improvements*

During the nineteenth century, private parties also acquired power sites on the public lands of the United States, and operated them for private gain virtually without control. Resentment against the monopolization of these natural resources became current. In the early years of the twentieth century, there arose a strong "conservation movement" based on the principle that the natural resources on the public domain and the water resources generally belonged to the people, that these resources should be conserved

and developed for the benefit of the people, and that they should not be alienated to private persons and corporations for their unrestricted exploitation.

On February 15, 1901, Congress passed an Act, 31 Stat. 790, authorizing the Secretary of the Interior to grant rights-of-way through public lands and reservations for the construction of "electric plants, poles and lines for the generation and transmission of electric power", but these rights-of-way were revokable in the discretion of the Secretary.

In Section 3 of the Reclamation Act of 1902, 32 Stat. 388, Congress authorized the Secretary of the Interior to withdraw from entry or appropriation any public lands for irrigation purposes, which meant that power sites were withdrawn from private development. On the other hand, at the beginning of the century, Congress also passed several acts granting perpetual rights to private companies to construct hydroelectric projects on the Tennessee, Rainey, James, White, and Coosa Rivers. These acts were vetoed by Presidents Roosevelt and Taft for the reasons, among others, that such rights should not be granted in perpetuity, and that such grants should be conditioned upon plans which would assure the maximum development of both navigation and power.

In the Act of April 16, 1906, 34 Stat. 117, recognizing that the waters stored for irrigation could also be utilized for the production of power, Congress authorized the Secretary of the Interior to lease any surplus power or power privilege, giving preference to *municipal purposes*, thus

evidencing an intention that the power benefits should be made widespread, rather than be monopolized by one or a few persons or corporations.

On June 25, 1910, Congress passed an Act, 36 Stat. 847, authorizing the President to withdraw any of the public lands of the United States from settlement or entry and to reserve such lands for water-power sites, irrigation or other public purposes.

This was followed in 1911 by an amendment of the 1901 Act (*supra*) authorizing the granting of easements over public lands, but limiting the grants to a period not exceeding 50 years, 36 Stat. 1253. Two years later, in the Raker Act of 1913, 38 Stat. 242, the City of San Francisco was granted the use of National Park lands for the purposes of storing water for domestic use and for developing power, but the City was prohibited "from ever selling or letting to any corporation or individual, except a municipality or a municipal water district or irrigation district, the right to sell or sublet the water or the electric energy". Here, again, Congress expressed the policy that power developed from the use of public waters should not be permitted to pass under the control of private monopoly.

In the Flood Control Act of 1917, Congress directed the Board of Engineers for Rivers and Harbors to include in its reports the facts and its opinions as to

> (a) what Federal interest, if any, is involved in the proposed improvement; (b) what part of the expenses, if any, should

– be borne by the United States; and (c) the advisability of adopting the project.

Thus it was contemplated that the flood control surveys would constitute the basis for Federal participation, to the extent recommended in the various reports and approved by Congress.

(B) THE FEDERAL WATER POWER ACT OF 1920

While there was strong opposition to the alienation of the water power resources to private corporations, there was also general anxiety that these resources should be developed. In 1913, the year that Congress passed the Raker Act, President Wilson sent a message to Congress urging the enactment of water power legislation which would stimulate the development of the water resources of the United States. This legislation was debated for almost seven years, and the debates involved, among other issues, the controversy between public and private development of these resources. Finally, the Federal Water and Power Act was passed on June 10, 1920, 41 Stat. 1063.

By this Act, a Federal Power Commission was created which was empowered to grant licenses for hydroelectric projects on streams or other bodies of water within the jurisdiction of Congress under the Commerce Clause, on public lands and reservations, and to utilize the water power of Government dams,[1] except, of course, where there

[1] The licensing of Government navigation dams was conditioned in the penultimate proviso of Section 4 (e) of the Act.

had already been a lawful occupancy.[2] Various conditions were prescribed in the Act, of which the first and foremost was that the proposed proj-

[2] These were: The projects constructed under acts of Congress passed prior to June 10, 1920, and multiple-purpose projects constructed by Federal agencies. Prior to the enactment of the Federal Water Power Act, there were already 34 Bureau of Reclamation dams with power facilities. See *Annual Report, Secretary of the Interior (1951)*, pp. 14–17. Since 1920, however, the number of project sites available for licensing by the Commission has been diminished, both by amendatory legislation and by the effects of other legislation.

The following are examples of diminution of projects by amendment of the Federal Water Power Act: In 1921, the Act was amended by providing that no licenses shall be issued for projects in National Parks and National Monuments, 41 Stat. 1353. In 1928, Congress withdrew the Potomac River in the vicinity of Great Falls from the licensing authority of the Commission, in order to preserve the scenic qualities of this part of the river, 45 Stat. 102. In 1928 Congress also passed the Boulder Canyon Project Act, which was not to become effective until the six States affected entered into the Colorado River Compact for the apportionment of the water among them. In Section 6 of this Act, Congress directed the Federal Power Commission "not to issue or approve any permits or licenses under said Federal Water Power Act upon or affecting the Colorado River or any of its tributaries," except the Gila River, "until this Act shall become effective as provided in Section 4 herein." 45 Stat. 1061. Thus in this Act there was a temporary withdrawal of project sites from the licensing authority of the Commission by a provision which may be regarded as an amendment to the Federal Water Power Act.

Examples of withdrawal of power sites from the licensing authority of the Commission, without amendment of the Federal Water Power Act, are the multiple-purpose projects authorized under the Reclamation laws, under special Acts, like the Bonneville Project Act, and those adopted under the Flood Control Acts.

ect should be best adapted to the comprehensive improvement of the stream for navigation, water-power, and other public uses, including recreational purposes. The phrase, "other public uses", included such uses as flood control, irrigation, *et cetera*. Thus in this Act also, Congress emphasized the need of comprehensive river basin development.

Compromise Between Public and Private Power Development

The Federal Water Power Act of 1920 was regarded as a "compromise" measure between advocates of private and public development of hydroelectric power resources. This compromise was urged by Senator Jones of Washington, Chairman of the Senate Committee on Commerce, in his report on the bill (S. Rep. 180, 66th Congress, 1st Session) as follows:

> It is necessary to point out the need for the beneficent results to come from water power development. It means a saving of coal, and a lower price for that used; a saving of oil, and a lower price for that consumed; more efficient transportation, and lower cost of service; the development of new industries; the building up of new communities; the creation of new property values, such as taxation for the support and maintenance of local and state governments; and added employment for labor and increased markets for agricultural products. Every year that our water powers are undeveloped means a loss to the people, in one form or another, almost, if not quite, equal to the cost of their development. Legislative action should be delayed

> no longer. We should do one of two things: We should pass legislation which will lead private capital and enterprise to develop these resources under such regulations as will give consumers good service and cheap power, or the Government itself should proceed to make this development. This bill proceeds on the theory of private development with ultimate public ownership possible.

By possible "ultimate public ownership", Senator Jones meant the provisions limiting the licenses to a maximum period of 50 years and reserving the right in the United States to recapture the project at the end of the license period upon payment of the net investment in the project, not exceeding its fair value. The recapture provision was not self-executing. Its application lay in the distant future, and even then was conditioned upon the non-renewal of the license. In addition, administrative machinery for taking over the projects had not been formulated, but was left for future legislation.

The more immediate and substantial element of "compromise" between public and private power in the Federal Water Power Act lay in the provisions giving preference to States and municipalities and prohibiting the issuance of licenses for projects which, in the judgment of the Commission, should be undertaken by the United States itself. These provisions were contained in Section 7 of the Act.

As between two or more private applicants, the Commission was to give preference to the applicant whose plans were best adapted to develop, conserve, and utilize in the public interest the

water resources of the region. As between a private applicant on the one hand, and a State or municipality on the other, preference was to be given to the State or municipality, if its plans were, or could be made, equally well adapted to conserve and utilize in the public interest the water resources of the region. Section 7 provided further that whenever, in the judgment of the Commission, the development of *any project* should be undertaken by the United States itself, the Commission should not approve any application for *such project* by any citizen, association, corporation, State or municipality, but should make investigations and reports and submit its findings to Congress with such recommendations as the Commission might deem appropriate concerning the construction of *such project*.

In explaining this provision on the floor of the Senate, the Chairman of the Committee on Commerce said (59 Cong. Rec. 246):

> It will thus be seen that under the terms of the act *the Federal Government* has, through its Commission, *the first right to develop* any of the water powers under its jurisdiction. *Should the Federal Government elect not to do so,* then States and municipalities are accorded a preference right to licenses on even terms over citizens, associations of citizens, or corporations organized under the laws of the United States or any of the States thereof. [Emphasis supplied.]

Thus, over and above the preference given to States and municipalities, there was expressed a prior right in the United States to construct the

projects, and the Congressional policy was that licenses should be issued only if it appeared that the United States should not undertake the development of those particular project sites. Under this provision of the Act, it was thus clearly contemplated that some project sites would not be available for non-Federal development.

Attempts and Failure to Stimulate Private Development

The passage of the Federal Water Power Act of June 10, 1920, did not stimulate any considerable number of applications for obtaining licenses to construct projects of major capacity.[3] By 1925, the Commission had issued a total of 24 licenses, of which only 5 were for projects "to be constructed." (See p. 89, *infra*.) Thus, in the first five years of the Federal Water Power Act, the development of hydroelectric projects fell far short of the expectation implied in Senator Jones' report.

To stimulate further the development of water resources, Congress, in the Rivers and Harbors Act of March 3, 1925, 43 Stat. 1186, 1190, authorized and directed the Commission and the Secretary of War to prepare an estimate of the cost of making examinations, surveys, and investigations of navigable streams and their tributaries,

[3] According to the Commission, there are 2,363 project sites in the United States, with potential capacities of 2,500 kw. or more. As of 1950, projects have been constructed on 552 of these sites. There are also some 1,400 hydroelectric power plants with capacities of less than 2,500 kw. (p. 88, *infra*).

> with a view to the formulation of general plans for the most effective improvement of such streams for the purposes of navigation and the prosecution of such improvement in combination with the most efficient development of the potential water power, the control of floods, and the needs of irrigation: * * *.

The Executive Secretary of the Commission and the Chief of Engineers submitted a report known as House Document 308, 69th Congress, 1st Session, in which they divided a large number of streams and their tributaries into three groups: (a) those as to which the Federal Government should share in the cost of improvement; (b) those as to which, in the light of the information available, the Federal Government should not make any large expenditures; and (c) those as to which it was apparent that the benefits to navigation to be derived from power development would be insignificant.

After this report was submitted, Congress, in the Rivers and Harbors Act of January 21, 1927, 44 Stat. 1010, 1015, authorized surveys to be made "in accordance with House Document 308, 69th Congress, 1st Session," but also added several other streams which had not been included in that report. Since then, and up to the 82nd Congress, the Corps of Engineers issued about 200 "308 reports."[4]

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[4] One of these reports was entitled "Roanoke River, Va. and N. C.". It was published in 1934 as House Document 65, 74th Congress, 1st Session. That this is a "308 report" is evidenced by the following, which appears under the heading of "Authority":

"The following report on Roanoke River, Va. and N. C.

At times, after a "308 report" is submitted, the Chief of Engineers may submit a "revised 308 report." Usually this is done pursuant to a resolution of a committee of Congress. An example of a "revised 308 report" is the report on the Columbia River Basin, discussed by the Chief of Engineers (General Pick) at the hearings on H. R. 5472, 81st Congress, 1st Session (referred to in the Examiner's decision III, 1067–7).

In reporting on possible improvements of streams for navigation, flood control, power development and other purposes, "308 reports" do not necessarily recommend that the improvements should be undertaken by the United States. For example, in the "308 report" on the Roanoke River, the Chief of Engineers recommended that the United States should not participate in its development at that time. On the other hand, some "308 reports", or revisions thereof, do definitely recommend Federal undertakings; for example, the reports on the Arkansas River and tributaries (Sen. Doc. No. 107, 81st Congress, 1st Session); the improvement at Albeni Falls on Pend Oreille River (Sen. Doc. No. 9, 81st Congress, 1st Session), and the Ouachita River and tributaries (Sen. Doc. No. 117, 81st Congress, 1st Session). In other words, there is nothing in the nature of these reports which would be incompatible with recommendations for Federal development, just as there is nothing to preclude

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is submitted in accordance with the provisions of House Document 308, 69th Congress, 1st Session, which was enacted into law, with modifications, in Section 1 of the Rivers and Harbors Act approved January 21, 1927."

This is how "308 reports" are identified.

their use for developments to be undertaken by non-Federal interests.

By 1928, only 22 more projects (2500 kw or more) were licensed by the Commission. Of these, only 3 were for projects "to be constructed". (See p. 89, *infra.*)

First Large-Scale Multiple-Purpose Development

In the meantime, Congress authorized the Bureau of Reclamation to construct 12 more irrigation and power projects. In 1928, Congress passed the Boulder Canyon Project Act, 45 Stat. 1057, which was the first undertaking by the United States of a large-scale multiple-purpose development including flood control, irrigation, municipal water supply and power. It authorized the Secretary of the Interior to construct this project. After the enactment of the Boulder Canyon Project Act, the Secretary of the Interior was authorized to construct additional projects for reclamation and other purposes, including the production of power. The effect of these Acts and authorizations was to withdraw the project sites from the licensing authority of the Commission, without amending the Federal Water Power Act.[5]

Investigation of Public Utilities

In the meantime, Congress became concerned with monopolistic practices in the public utility industry. This led Senator Walsh of Montana, in 1928, to introduce S. Res. 83, 70th Congress, 1st

[5] For a list of the Reclamation projects and their power capacity, see *Annual Report of the Secretary of the Interior (1951)*, pp. 14–17.

Session, which called for an investigation of the public utilities by a Senate Committee. The investigation proposed was to cover two main subjects: (1) the facts relating to holding company control, including their financial structures and relationships, the issuance of securities, the rendition of service to public utilities, and the effect thereof, and what legislation should be adopted to correct abuses; and (2) the influence and control of public opinion by public utilities, especially on the development of municipal or public power, and their influence and control of elections. The resolution was amended to provide for an investigation by the Federal Trade Commission, rather than by a Senate Committee. The Commission made an extensive investigation and uncovered many significant facts on both subjects of the resolution.

Amendment of the Federal Water Power Act

The facts disclosed contributed greatly to the enactment of the Public Utility Holding Company Act, and to the 1935 amendments of the Federal Water Power Act of 1920, 49 Stat. 838. By Title II of the Public Utility Act of 1935, the original Federal Water Power Act was made Part I of the "Federal Power Act", and Parts II and III were added, vesting in the Commission jurisdiction over interstate electric utilities and containing administrative and procedural provisions affecting public utilities and licensees.

By Section 7 (b) of the Federal Power Act, the latter part of Section 7 of the 1920 Act was amended to prohibit the approval of applications

for projects *affecting* any development of *water resources for public purposes*, which in the judgment of the Commission should be undertaken by the United States itself. "Development of any water resources for public purposes" could mean the construction of a single project, as was contemplated in Section 7 of the 1920 Act, but it could also mean a large number of projects constituting an entire river basin development. Furthermore, while in the former provision the Commission was precluded from granting a license for the very project which, in its judgment, should be constructed by the United States, it was now precluded from approving an application for any project *affecting* such water resource development. Thus the amendment had the effect of reducing further the number of project sites available for licensing. Furthermore, it evidenced a definite recognition of programs then being initiated by Congress for multiple-purpose river basin development, requiring the Commission to look to such developments rather than to individual projects, and to prevent any licensing which would stand in the way of such developments. (See pp. 78–9, *infra*.)

This reduction of available sites had little or no effect on the progress of non-Federal water resource development, for two reasons:

First, during the first 15 years of its existence, the Commission never did apply the latter part of Section 7 of the Federal Water Power Act, either by expression of a judgment that the construction of a project should be undertaken by the United States, or even by findings that the construction of the projects for which licenses were

issued should not be undertaken by the United States.

Second, the applications filed hardly made an impression on the reservoir of major project sites which were available for licensing. Despite the provisions of the Federal Water Power Act and the assistance which could be derived from the "308 reports" of the Corps of Engineers, by 1936 the Commission had issued a total of only 63 licenses for projects having capacities of 2500 kw or more. Of these, only 18 were for projects "to be constructed". (See p. 89, *infra*.)

The Tennessee Valley Authority Act

Prior to 1933, little was done by way of legislation to provide for multiple-purpose development, including flood control, except the Boulder Canyon Project Act of 1928, and the authorization of additional Reclamation projects. In 1933, with the enactment of the Tennessee Valley Authority Act, 48 Stat. 58, Congress for the first time embarked upon a river basin multiple-purpose development and utilization of water resources for navigation, flood control, power development, and other purposes.

To counteract the monopolization of power, Congress provided that in the disposition of power, the benefits of this governmental undertaking should flow directly to the people of the region. These benefits were to be made as widespread as possible, by giving preference to States, counties, municipalities and cooperative organizations "not organized or doing business for profit, but primarily for the purpose of supplying electricity to its own citizens or members." In this

Act, and in its later amendments, this policy against monopolization of power was emphasized by provisions for the encouragement of the use of electric energy for domestic and rural consumption and by provisions for control of resale rates.

To protect the public from excessive rates, Congress adopted the policy of making power available to consumers at low cost. The preference in the sale of power given to States, counties, municipalities and non-profit organizations made it possible for consumers to obtain power at cost, and to receive the full and undiminished benefit of the power.

The nation was in the midst of an unprecedented economic depression. In 1933 Congress passed the National Industrial Recovery Act, 48 Stat. 195, of which Title II was devoted to public works programs. Under this Act and under the Emergency Relief Act of 1935, 49 Stat. 115, work was commenced on the Bonneville dam, the Central Valley Project in California, and other projects.

In 1936, Congress passed the Rural Electrification Act, 49 Stat. 1363, to enable farmers organizing non-profit organizations to construct or acquire facilities for the transmission and distribution of electric power to their members. This Act, together with the acts which would make low-cost power available, has had the effect of furthering the policy against monopolization and for the widespread use of electric power. In 1935, only about 11% of the farms were electrified. By 1951, with the operation of the Rural Electrification Administration and the sale of public power to

rural cooperatives, over 84% of the farms were electrified.[6]

(C) THE FLOOD CONTROL ACT OF 1936

In the same year, Congress passed the Flood Control Act of 1936, 49 Stat. 1570, which marked so great a departure from the Act of March 1, 1917, as to warrant saying that Congress embarked upon a new policy.

(a) Whereas, in the 1917 Act, the Board of Engineers was to recommend to what extent, if any, the Federal Government should participate in the improvements, here Congress recognized that it was the responsibility of the Federal Government to construct projects for flood control and allied purposes, if the benefits exceeded the costs and if the lives and social security of people were affected.

(b) It vested jurisdiction in the Secretary of War over investigations and improvements for flood control, and vested jurisdiction in the Secretary of Agriculture over investigations and improvements for water retardation and prevention of soil erosion, "except as otherwise provided by Act of Congress".

(c) It required the Secretaries of War and Agriculture, in their reports upon examinations and surveys, to be guided by the policy declared in Section 1 of the Act; namely, that where the benefits exceeded the costs, the Federal Government should undertake the improvements.

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[6] *Agricultural Statistics (U. S. D. A.) 1951*, p. 697.

(d) It was the first act in which Congress approached the problem of flood control on a Nation-wide basis.

(e) Instead of providing for investigations and improvements at specified localities, it attacked the problem of flood control on a basin-wide basis.

(f) It also provided that, upon recommendation of the Chief of Engineers, the Secretary of War "may" install penstocks and other facilities necessary to adapt the dams to production of power.

The policies set forth in the 1936 Act were repeated with some modifications in the Flood Control Acts of 1938, 1941, and 1944, and became codified as general law in 33 U. S. C. 701, 701a, 701a–1, 701b. Beginning with the Flood Control Act of 1938, the provision for the installation of penstocks and similar facilities for the generation of power was made obligatory on the Secretary of War, when recommended by the Federal Power Commission and by the Chief of Engineers.

The pattern of legislation for Federal improvements of rivers and harbors, as finally established in the Rivers and Harbors Act of July 3, 1930, became the pattern of the flood control acts. In the Flood Control Act of 1936, Congress "adopted and authorized" a large number of improvements in the various river basins enumerated therein, in accordance with recommendations contained in various reports theretofore submitted by the Chief of Engineers. In another section of the Act, it authorized and directed the Secretary of War to cause examinations and surveys to be made at various localities in a large

number of streams therein enumerated, and provided that the Government shall not be deemed to have entered upon an improvement until it was "adopted by law." The same pattern was followed in all of the subsequent flood control acts.

In the year following the enactment of the Flood Control Act of 1936, Congress passed the Bonneville Project Act, 50 Stat. 731, in which the policy against monopolization of power was reiterated and in which it was provided that preference in the sale of power should be given to "public bodies and cooperatives". In this Act, some of the means for effecting widespread use were specified—by authorization to construct transmission facilities for carrying the power to existing and potential markets, and by provisions for interconnection with other systems. The same policy was implemented in the Fort Peck Act of 1938, 52 Stat. 405, in which, after declaring that the "facilities for the generation of electric energy at the Fort Peck project shall be operated for the benefit of the general public, and particularly of domestic and rural consumers", the Bureau of Reclamation was required, in disposing of the power, to give preference to public bodies and cooperatives.

Beginning with the Bonneville Project Act of 1937, Congress also provided that the rate schedules applicable to power generated at Government projects should be drawn with due regard to the recovery of the cost of producing and transmitting the electric power, including the amortization of the capital investment allocated to power over a reasonable number of years. Substantially the same provision was included in the Fort Peck

Act of 1938, and in the Reclamation Project Act of 1939, 53 Stat. 1187. These rate provisions may be regarded as the crystallization of the rate policies in the Tennessee Valley Authority Act.

By the end of 1944, Congress had "adopted and authorized" many projects or river basin developments for flood control and the production of power as Federal undertakings. It was necessary to set up administrative machinery for the disposition of the power to be generated at these projects. Since the Secretary of the Interior was already engaged in the disposition of power generated at Bonneville, Fort Peck, Reclamation and other projects, in Section 5 of the Flood Control Act of 1944 he was assigned the function of transmitting and disposing of the power and energy generated at all reservoir projects under the control of the Department of the Army. At the same time, Congress reasserted and implemented the policies previously developed by requiring the Secretary to market this power in accordance with the following standards:

(a) The power must be disposed of in such a manner as to encourage the most widespread use thereof;

(b) Preference in the disposition of such power must be given to public bodies and cooperatives;

(c) The power must be disposed of in such a manner that the consumers will benefit therefrom at the lowest possible rates consistent with sound business principles; and

(d) The rates at which the power is sold must be so calculated that they will, over a reasonable number of years, recover the cost of producing

and transmitting the power, including amortization of the investment fairly allocable to power.

Until the enactment of the Flood Control Act of 1950, Congress adopted 991 flood control projects of all types. Of these 256 had been completed, 223 were under construction, and 512 had not yet been started. The estimated cost of the Nation-wide flood control program, as of 1950, was somewhat in excess of $7,500,000,000; Congress had authorized appropriations in the amount of $3,500,000,000; and through the fiscal year 1949, had appropriated approximately $2,000,000,000. (See p. 110, *infra*.) Of the almost 1,000 projects adopted, 146 involved power developments, which were thus withdrawn from the licensing authority of the Commission without amendment of the Federal Power Act (pp. 180–4, *infra*).

F. P. C. Joins in Plans for Federal Developments

During this period, the Federal Power Commission began to play an important role in Federal multiple-purpose development through the provision of Section 7 (b) of the Federal Power Act. While in the first 15 years of its existence the Commission had given no effect to the latter part of Section 7 of the Federal Water Power Act, it did take steps to apply the 1935 amendment of this provision. Shortly after the enactment of the 1935 amendments, the Commission, on December 8, 1936, adopted an order authorizing the issuance of a license to the White River Power Company for Project No. 654, at Wildcat Bend on the White River in Arkansas, having found

> That the licensing of the Wildcat Bend development, as hereinafter provided for, will not affect the development of any water resources for public purposes which should be undertaken by the United States.

Later, while the Flood Control Act of 1938 was pending before Congress, the Commission adopted an order reopening the proceeding and directing the applicant, White River Power Company, to show cause why the order of December 8, 1936 should not be dismissed or denied. On June 28, 1938, Congress passed the Flood Control Act of 1938, in Section 4 of which Congress "adopted and authorized" a large number of works of improvement, including the comprehensive plan for the development of the White River Basin. On the following day the Commission issued an order in which, after reciting Section 7 (b) of the Federal Power Act, it found that its previous finding quoted above was "not at this time justified by the record in this case". The order of December 8, 1936 was rescinded. *In the Matter of White River Power Company*, 1 F. P. C. 731.

In the adoption of the plan for the comprehensive development of the White River Basin, the location of the project units was left for future determination by the Chief of Engineers. The Commission, nevertheless, considered such an enactment as sufficient ground for revoking an order authorizing the issuance of a license. It would follow that where Congress adopted or approved plans of development, with the various units specifically located, any applications for licenses for any of the project units in the plans would be dismissed or denied. This was the Commission's

contemporaneous administrative interpretation of the flood control acts in relation to Section 7 (b) of the Federal Power Act, as reflected in the Commission's 17th Annual Report (1937), under the heading "Regional Planning for Conservation and Development of Water Resources" (pp. 4–5).

The following excerpt is the Commission's comment on a letter written by its chairman on the Norris Bill, S. 2555, and the Rankin Bill, H. R. 7392, 75th Congress, 1st Session:

> Certain fundamental purposes of these bills, among others the development, integration and coordination of plans and projects for or incidental to the promotion and protection of navigation, flood control, and conservation and development of water resources, this letter recited, are within the powers and duties delegated to the Federal Power Commission by the Congress under the Federal Water Power Act of 1920 and the amendments thereto, consisting of Title II of the Public Utility Act of 1935.
>
> "From the above citations and other provisions of the Federal Power Act it appears that the main objectives of the bill under consideration, at least insofar as they refer to the development of our national water resources and the incidental development of hydro-electric power, are extensions of a policy long ago declared by the Congress not only in the Federal Water Power Act of 1920 and the amendment thereof in 1935 but also in numerous other acts of Congress, such as those authorizing the Boulder Dam and Tennessee Valley Authority developments and other reclamation, flood control, and navigation improve-

ments", the Chairman's letter pointed out, and in conclusion stated:

> "In the opinion of this Commission, the Federal multiple purpose projects heretofore authorized by the Congress have justified the wisdom of the underlying congressional policy that these public resources be developed by the Government to assure their combined maximum availability to and uses by the public at minimum cost. It is noted that the bill provides administrative machinery and proposes certain policies varying in some respects from those embodied in existing law, but it is our view that the main purposes of the bill are the matters of paramount importance. Even though this Commission's functions may be modified, we would deem that to be of secondary importance, the primary consideration being the social and economic advantages to the public."

The Commission continued to give effect to Section 7 (b) of the Federal Power Act by taking advantage of the Army Engineers' investigations and surveys made pursuant to the flood control acts. A practice, or method of cooperation, became established, for the Chief of Engineers to submit the report of the Board of Engineers for Rivers and Harbors to the Commission for its comments. The Commission reviewed these reports, suggested changes and in most instances concurred in the recommendations of the Board. The first of such letters was written by the Commission on February 7, 1939. Since then, it has concurred in the Board's recommendations for Federal developments in over 40 recommendations for Federal development (pp. 186–218, *infra*). This became the Commission's usual method of ex-

pressing its judgment that development of water resources for public purposes should be undertaken by the United States.

The one exception to this method was the Commission's action in the *Matter of New York Power Authority, Project No. 2000.* On December 22, 1950, the Commission denied the application of the New York Power Authority for a license to construct a project on the St. Lawrence River, having found, on the basis of the record made before the Commission, that the development of the water resources of this river should be undertaken by the United States.

Failure of Extensive Private Development

Neither the enactment of the Flood Control Acts beginning with the Act of 1936, whereby the Federal Government entered into the field of comprehensive river basin development, including the production of power in competition with private power companies, nor the application of the Federal Power Policy to the power generated at reservoir projects under the control of the Department of the Army, nor the Federal Power Commission's cooperation in recommending Federal developments under Section 7 (b) of the Federal Power Act stimulated the private power companies to develop hydroelectric power plants under the licensing provisions of that Act.

Between the years 1936 and 1951, the Commission issued 47 licenses for projects of 2,500 kw. or more. Of these, only 16 were for projects "to be constructed" (p. 89, *infra*). Thus in the 30 years of its existence, Congress issued only 110 licenses for projects with capacities of 2,500

kw. or more. Of these, only 34 licenses were for projects "to be constructed", and of these, only 18 were issued to private power companies, or on the average of three-fifths of a project per year.

By the end of the fiscal year 1951, the Commission had issued a total of 110 licenses for projects having capacities of 2,500 kw. or more. According to the Commision's publication *"Potential Power Capacity"* (p. 88, *infra*), some 497 such sites have been developed by non-Federal interests. It does not appear why 387 of these projects are not under license. By the end of the fiscal year 1951, there were 538 project licenses outstanding, of which 428 must be for projects having capacities of less than 2,500 kw. There remain about 1,000 small projects which may come within the licensing requirements of the Federal Power Act.

At the present time, there are still well over 1,600 major project sites available for development by private power companies. At their actual previous rate of developing the water power resources, it would take some 2,500 years to complete the development of the major power sites of the Nation,[7] unless the United States itself should proceed to develop them on a river basin basis.

[7] In terms of developing power capacity, the private power companies have made a better showing. The 18 projects have an installed capacity of 1,318,000 kw., and the development of power capacity has been at the rate of about 74,000 kw. per year. According to the Commission, the undeveloped potential hydroelectric capacity at the major sites (2,500 kw or more) as of 1950 was 88,070,125 kw. At their rate of developing capacity during the first 30 years, it would take the private power companies some 2,000 years in which to complete the development of the total power capacity.

Federal Power Commission

Potential Hydroelectric Power in the United States, May 1950

INTRODUCTION

The studies of the Commission with respect to potential hydroelectric power in the United States by major drainage basins and sub-basins have been made under the provisions of Section 4 (a) of the Federal Power Act, which authorizes the Commission "to make investigations and to collect and record data concerning the utilization of the water resources of any region to be developed * * *".

Basic data on the installed capacity of electric utility generating plants of the United States and the production of electric energy are furnished by reports received both from utilities subject to Commission jurisdiction and from all other electric utilities and generating agencies, including Federal and non-Federal public, and certain industries which generate electric energy, and represent substantially 100 percent coverage.

By making use of data obtained during the course of comprehensive river basin surveys made either in connection with licensed project work or in cooperation with other Federal agencies and by using information obtained from investigations made by others, the Commission estimates the undeveloped water power resources of all the

principal river basins of the country. These estimates must be revised from time to time as new studies are made and as information is obtained. The Commission's estimates are based on the rated capacity of generators that would normally be installed at potential hydroelectric developments assuming reasonable regulation of flow by storage, depletion by irrigation and other consumptive use, and other factors pertinent to the best over-all development of the river for power and other uses. The energy estimates represent average annual production by the estimated installed capacity.

The tables summarize the potential hydroelectric power by major drainage basins and by subbasins, showing the existing and undeveloped power by number of projects, total installed capacity, and average annual generation.

The figures on existing hydroelectric power are for Federal hydroelectric plants and for electric utility plants of 2,500 kilowatts or more installed capacity, and are based on information filed with the Commission. There are 552 constructed projects in these two groups, having a total installed capacity of about 16,500,000 kilowatts with an average annual generation of approximately 87,100,000,000 kilowatt-hours. Approximately 45 percent of the total developed power is in the region west of the Continental Divide, totalling about 7,300,000 kilowatts. The major drainage having the highest percentage of the total developed power is in the North Pacific Drainage where about 3,500,000 kilowatts are installed or about 21 percent of the total for the United States. The five major drainages next in order of

percentage of the country's total development are the Ohio River Drainage with about 3,000,000 kilowatts, or 18.2 percent; the South Pacific Drainage with about 2,200,000 kilowatts, or 13.3 percent; the North Atlantic Drainage with about 1,700,000 kilowatts, or 10.5 percent; the Colorado River Drainage with about 1,300,000 kilowatts, or 7.9 percent; and the Great Lakes-St. Lawrence River Drainage with about 1,200,000 kilowatts, or 7.2 percent.

Federal hydroelectric plants have installations totalling about 6,000,000 kilowatts, or 37 percent of the total developed power. The Ohio River Drainage has the largest total installed capacity in Federal plants, comprised principally of Tennessee Valley Authority plants, amounting to about 2,200,000 kilowatts or over one-third of the total capacity of all Federal plants. The North Pacific and Colorado River Drainages are next in order of total capacity installed in Federal plants with about 1,970,000 kilowatts and 1,180,000 kilowatts respectively.

In addition to the Federal and non-Federal plants included in the table there are close to 900 small utility plants of less than 2,500 kilowatts capacity having a total installed capacity of approximately 675,000 kilowatts, and around 500 electric power plants of industrial establishments having an installed capacity of nearly 900,000 kilowatts. The annual generation of these two groups of plants is estimated to be in the neighborhood of 7,000,000,000 kilowatt-hours.

The data on undeveloped water power are divided into three categories: (1) Projects under construction—Federal and non-Federal; (a) (*sic*)

Authorized Federal projects; and (3) Other projects.

Thirty Federal projects are under construction having a total initial installed capacity of about 4,900,000 kilowatts with an average annual generation of about 26,000,000,000 kilowatt-hours. Based on information available to the Commission, there are seventeen non-Federal plants under construction having a total installed capacity of about 708,000 kilowatts with an estimated average annual generation of about 3,500,000,000 kilowatt-hours. The aggregate increase in installed hydroelectric capacity by the construction of these forty-seven projects will be about 5,600,000 kilowatts with a corresponding average annual generation of about 29,500,000,000 kilowatt-hours.

Sixty-nine Federal projects have been authorized which include the development of power. The capacity to be installed in these projects, plus the additional authorized capacity for ultimate installation in existing projects and projects under construction totals about 12,650,000 kilowatts with an estimated average annual generation of about 54,600,000,000 watt-hours.

In addition to the projects under construction or authorized for construction there are about 1,700 other potential projects comprising projects that have been studied and reported on by the Corps of Engineers, the Bureau of Reclamation, or other agencies and projects which have been studied by the Commission's staff either independently or in conjunction with the Corps of Engineers or the Bureau of Reclamation. These projects also include additions to existing projects and redevelopments of projects which may or

may not have received consideration by their owners. The total installed capacity which would be provided by these potential projects is estimated to be about 70,000,000 kilowatts with an estimated average annual generation of about 307,000,000,000 kilowatt-hours.

As stated above the estimates of undeveloped power, based on the rated capacity of generators that would normally be installed at potential hydroelectric developments, must be revised from time to time as new studies are made and additional information is obtained. It is emphasized that the estimates have been based in many cases upon preliminary investigations and, therefore, that much additional detailed study is required before a selection of projects can be made in formulating any comprehensive plan of river development. Although some of these potential projects may, upon detailed investigation, be found infeasible and impracticable of development from physical, or economic, or other standpoints, the projects taken in the aggregate serve to indicate, from a long-range view, the over-all water power potentialities of the United States and the water power resources available for possible future development.

The estimated total undeveloped water power, including projects under construction, authorized projects and other potential projects, is about 88,000,000 kilowatts with an estimated average annual generation of about 391,000,000,000 kilowatt-hours. Fifty-five percent of this undeveloped power, or about 49,000,000 kilowatts, is west of the Continental Divide, with 40 percent, or

about 35,300,000 kilowatts being in the North Pacific Drainage. The next five major drainages in order of percent of total undeveloped power are the Missouri River Drainage with about 8,600,000 kilowatts or 9.8 percent; North Atlantic Drainage with about 7,400,000 kilowatts, or 8.4 percent; South Pacific Drainage with about 7,300,000 kilowatts, or 8.3 percent; Ohio River Drainage with about 6,800,000 kilowatts, or 7.7 percent; and Colorado River Drainage with about 5,700,000 kilowatts or 6.5 percent.

The total potential hydroelectric power, existing under construction, authorized, and other, as shown by the table for the United States is about 104,600,000 kilowatts with an average generation of about 478,000,000,000 kilowatt-hours.

Potential Hydroelectric Power, United States

	Number projects	Installed capacity, kilowatts	Average annual generation, 1,000 kw.-hr.
DEVELOPED POWER			
Constructed projects:			
Federal	55	6,098,912	35,497,600
Non-Federal [1]	497	10,401,359	51,613,750
Total	552	16,500,271	87,111,350
UNDEVELOPED POWER			
Projects under construction:			
Federal	30	[2] 4,889,575	[2] 26,1[illegible]2,000
Non-Federal	17	[3] 708,020	[3] 3,49[illegible],200
Total	47	5,597,595	29,602,200
Authorized Federal projects	69	[4] 12,651,570	[4] 54,580,100
Other projects (see note)	695	[3] 69,820,960	[3] 306,916,205
Total undeveloped power	1,811	88,070,125	391,098,505
Total potential power	2,363	104,570,396	478,209,855

[1] 2,500 kilowatts or more installed capacity.
[2] Includes additions to constructed projects.
[3] Includes additions to and redevelopments of constructed projects.
[4] Includes authorized additions to constructed projects and projects under construction.

Note.—Estimates have been based in some cases upon preliminary investigations and must be revised from time to time as additional information is obtained and new studies made. Although detailed investigation may find some projects infeasible for physical, economic, or other reasons, the possibilities taken in the aggregate serve to indicate, from a long-range view, water power potentialities.

Number of Hydroelectric Projects (2,500 Kilowatts or More) Licensed by Federal Power Commission as of June 30, 1951

Fiscal year	Constructed projects	Projects under construction	Projects to be constructed	Total
1921		4		4
1922	2	3	2	7
1923	2	7	1	10
1924		1	2	3
1925	1	2	1	4
1926	3	5	2	10
1927	1	2		3
1928	2	3		5
1929			2	2
1930	1		5	6
1931				
1932				
1933				
1934		1	2	3
1935			1	1
1936	5			5
Total	17	28	18	63
1937				
1938			3	3
1939	3		1	4
1940	2		1	3
1941	1			1
1942			2	2
1943	1			1
1944	4			4
1945	3	1	1	5
1946				
1947			1	1
1948	4	1	1	6
1949	1		1	2
1950	3		4	7
1951	3	4	1	8
Total	25	6	16	47
Grand total	42	34	34	110

The Federal Power Policy

In the enactment of flood control and power legislation since 1906, Congress developed a consistent policy with respect to the construction of multiple-purpose projects and the disposition of power generated. With the passage of the Tennessee Valley Authority Act, the Rural Electrification Act, the Reclamation Project Act of 1939, the Bonneville Project Act of 1937, the Fort Peck Act, the amendment of Section 7 (b) of the Federal Power Act and the Federal Power Commission's interpretation and applications thereof, and the various Flood Control Acts since 1936, the Federal Power Policy became established (pp. 70–80, *supra*).

Its objectives in relation to the construction of multiple-purpose projects has been to make full comprehensive use of the land and water resources in their relation to each other. In all these developments, Congress has pursued the policy of authorizing such project works as are economically justified, that is, where the benefits are equal to or exceed the costs. However, Congress has made a distinction between "reimbursable" and "nonreimbursable" uses or purposes. To the former belong such purposes as power development, irrigation, and municipal water supply. They are in the nature of services rendered to specific persons or groups of persons, and all the costs involved in these services are borne by

them. To the nonreimbursable class of purposes belong navigation, flood control, salinity control, and others, which have been regarded as benefiting the people generally. The costs involved in these purposes are borne by the Federal taxpayers.

The charges for particular services of the reimbursable class must recover the costs allocated thereto. Except where otherwise provided by law,[1] the users of power are not required to subsidize any other purposes or uses of the multiple-purpose projects. Nevertheless, even within the framework of this principle, power development often serves to make flood control and irrigation projects economically justifiable. Without power development to benefit from and share in the joint costs of the multiple-purpose projects, many of the needed flood control and irrigation developments would be economically unjustifiable. At the same time, the financial feasibility of a power development is enhanced, if it is a part of a multiple-purpose project. Power development thus plays an important role in the construction of multiple-purpose projects, the objective of which is to achieve the optimum benefits for the people in their respective areas.

In the disposition of power the objective of the Federal Power Policy is to benefit the consumers. The sale of power in such a manner as to encourage the most widespread use thereof at the lowest possible rates to consumers has been set forth as a major purpose in the acts referred to above,

[1] As in the case of "irrigation subsidy," where part of the irrigation costs are borne by the power developments (Section 9 (a), Reclamation Project Act of 1939, p. 17, *supra*).

especially the sales for domestic and rural consumption.

The advantages of this low-cost power do not stop with the consumers of Government power. A still greater effect is to be found in the fact that this low-cost power has a competitive effect on the adjacent areas served by private power companies, resulting in reductions in their rates. The impact of this competition has been especially felt in the rates charged by them to rural cooperatives.[2] Herein lies a major part of the economic importance of low-cost Government power to the rural population.

This beneficial effect extends also to the urban population. For them the rates are also reduced, and the decrease in rates means greater consumption of power, greater use of electrical appliances, greater use of electrical advertising, and expanded sales of commodities.

The reduction in rates through the competitive influence of public power has also inured to the benefit of the private power companies. Op-

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[2] A comparison of the wholesale rates charged to rural consumers by private power companies in the Southeast with those in the Northeast, and the rates charged by them in the Southwest with those in the West North Central States, discloses that in the states with little or no public power the charges are approximately 80% higher than those charged in the states where public power appears as a competitive element. (*Report of the President's Water Resources Policy Commission*, Vol. I, 229.) A comparison of the wholesale rates for 1941 through 1950 charged by private power companies in the States of Texas and Oklahoma (where public power has been introduced) with those in the Northeast and Middle Atlantic States, shows that the latter exceed the former by 187% (Ibid., p. 231).

erating as "natural monopolies," most of the power companies do not find it necessary to make their service available at low rates. Generally, they have had to be forced to lower their rates, at times through the police functions of the regulatory commissions, and at other times through the competitive element of public power. Where rates were lowered, however, the consumption of electric power increased, and the effect was to improve, rather than harm, the financial condition of the private power companies.[3]

There has been ample opportunity for both Government (Federal and State) and private power companies to develop water power resources. From 1920 to date, however, the private power companies obtained and now hold only 87 F. P. C. licenses for projects having capacities of 2500 kw or more, of which only 18 are for new projects. Instead of developing the water resources in competition with the Federal Government, however, the private power companies have embarked upon a program of opposing these Federal undertakings and the disposition of power from constructed projects in accordance with the Federal Power Policy. Their methods have taken on a definite pattern.

In practically all instances, whenever the developments for flood control or other public uses

[3] This is now illustrated by what has transpired during the past decade and a half around the TVA area. For the years 1937 through 1949, the average rate of return of the private power companies throughout the United States was 7.11%; while in the areas adjoining the TVA, the average rate of return of the private power industry for the same years was 8.27%, going as high as 9.55% (Ibid. p. 235).

have included power, private power companies have opposed such projects. Where they have failed in this effort, they assumed the position of "supporting" Federal hydroelectric developments, endeavoring to assure that the power would be turned over to them.

Some companies have applied for licenses with the purpose or effect of striking at the expansion of Federal power developments by way of preventing or interfering with plans for the construction of Federal hydroelectric projects. A notable example is the application of the Pacific Gas & Electric Company for licenses to construct projects on the North Fork Kings River in California, which would interfere with the development of the Central Valley Project of the Bureau of Reclamation.[4]

The most extreme example was the application of the Savannah River Electric Company (a subsidiary of the Georgia Power Company) for a license to construct the Clark Hill Project, one of the units in the comprehensive plan for the development of the Savannah River, approved in Section 10 of the Flood Control Act of 1944 (p. 23, *supra*). That attempt was unsucessful. The Federal Power Commission dismissed the application, and the Circuit Court of Appeals for the Fourth Circuit affirmed the order.[5] The Company then had a bill introduced in Congress (H. R. 3826, 80th Congress, 2d Session) to direct

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[4] The Commission granted the licenses, over the objection of the Secretary, and the case is now pending on petition for review before the United States Court of Appeals for the Ninth Circuit.

[5] *Savannah River Electric Co.* v. *F. P. C.*, 164 F. (2d) 408.

the Commission to issue a license for the construction of the powerhouse at Clark Hill. Hearings were held before the House Committee on Flood Control, but the bill was never reported out. Had this bill been enacted, net power benefits [6] in the sum of $112,000,000 over the 50-year period of the license would have been surrendered to the Company.

While opposing Federal developments, the power companies at the same time strike at the disposition of power to public bodies and cooperatives. In order to dispose of power, it is necessary that transmission and related facilities should be available. Section 5 of the Flood Control Act of 1944 provides, and sound business judgment requires, that only such facilities should be constructed or acquired as are necessary to make the power available in wholesale quantities. Sound business judgment also requires that transmission facilities should not be unnecessarily duplicated. The Secretary of the Interior has therefore pursued the policy of utilizing privately-

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[6] The term "gross power benefits" of a hydroelectric project means the annual cost (including cost of capital) of producing the equivalent amount of power at an alternative source, usually from an equivalent steam plant.

The term "net power benefits" of a hydroelectric project means the gross power benefits less the annual cost of the power produced at the hydroelectric project.

In the case of a private hydroelectric project, the term "net power benefits" means the difference between the annual cost of an equivalent steam plant and that of the hydro plant.

In the case of a Federal hydroelectric project, the term "net power benefits" means the difference between the annual cost of an equivalent steam plant under *private* development and the annual cost of the Federal hydro plant.

owned transmission facilities with adequate excess capacity for the purpose of transmitting Government power, provided that contracts for this purpose be entered into which are consistent with the Federal Power Policy.

The private power companies have put many obstacles in the way of such programs.

When construction of Federal hydroelectric projects is commenced, privately-owned electric utilities often seek to construct transmission lines from their systems to the dams.[7] This is often done, not for the purpose of wheeling power for the Government, but for the purpose of blocking the sale of such power in accordance with the Federal Power Policy of giving preference to public bodies and cooperatives. The purpose of the electric utilities is to force the Secretary to sell the power to them at the bus bar, and thus to monopolize the power produced at the Government's dams.

The Secretary's responsibilities require him to resist such tactics.[8] He, therefore, issued in-

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[7] VEPCO constructed or acquired three transmission lines to the Buggs Island project. House Hearings on Interior Department Appropriations for 1953, p. 1568.

[8] When it became evident that private power companies would seek to construct high voltage transmission lines over public lands under the jurisdiction of the Department of the Interior for the purpose stated above, the Secretary promulgated general regulations requiring such companies to stipulate that they would wheel Government power over such lines to the extent of their unused capacity, upon the payment of compensation as provided in the regulations. The validity of such regulation; as a condition of an F. P. C. license, is involved in No. 12, *Federal Power Commission* v. *Idaho Power Company*, now pending on writ of certiorari.

The validity of the regulation has also been attacked in

structions to the various power marketing agencies in the Department, embodying a set of principles to be used as a basis for entering into wheeling arrangements with private power companies.[9] These principles are:

First, that the policies embodied in the law must be followed;

Second, that transmission facilities which interconnect the Government's sources of supply with each other and with load centers should be owned and controlled by the Government;

Third, that the power programs of the Department should be developed consistently with the above and with a view toward utilizing existing non-Federally-owned transmission capacity under arrangements satisfactory to the Government; and

Fourth, that the arrangements should provide for (a) assurance to the Government's customers of the same high quality of service, the same opportunity to develop and serve increased loads, and the same right to contract directly with the Government as they would have if the Government were to build its own facilities; (b) safeguarding fully the rights of preference customers; (c) avoidance of monopolization of power which would result from the sale thereof at the bus bar or otherwise; (d) equally or more advantageous

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the case of *Idaho Power Company v. Chapman*, Civil No. 4540–50, in the United States District Court for the District of Columbia. On June 2, 1951 the District Court upheld the validity of these regulations.

[9] Senate Committee Hearings on H. R. 3790, 82d Congress, 1st Session, p. 35.

methods of supplying power to the Government's customers, as or than would obtain if the Government constructed the transmission facilities; (e) reasonable compensation to be paid for the use of transmission capacity of others, but in no event greater than the cost to the Government of its own transmission capacity;[10] (f) whenever practicable, exchange of power upon reasonable terms, for the firming up of the power supply of both the Government and of the utility, for economical operation, and for emergency breakdown relief, and (g) cancellation of arrangements on asonable terms.

The power companies have countered by refusing to wheel Government power altogether, or by refusing to wheel power to particular classes of customers. Some of the power companies have offered to wheel power at such excessive rates that the benefits of the Government's project would accrue almost entirely to them.[11]

In order to carry out his responsibilities, the Secretary is required to request Congress for

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[10] This principle is based on two considerations: The first is inherent in the duty of a public utility to render service at rates which are reasonable. The second is embodied in the requirement of Section 5 that the power must be disposed of at rates which would recover the costs of generation and transmission, and in such a manner that the consumers would pay the lowest possible rates consistent with sound business principles. If the wheeling charge is greater than would be the cost of such transmission over the Government's own facilities, and such cost is passed on to the consumers, the rates to them would not be the lowest possible consistent with sound business principles.

[11] See VEPCO's offer to wheel power from Buggs Island (I, 357).

appropriations for the construction of such transmission lines as would be necessary to transmit power from the dams to the load centers. Thereupon the power companies appear before the Congressional committees and vigorously oppose such appropriations on the theory that they already have transmission lines in the area and that they are willing to wheel power for the Government.[12] Even after such appropriations are granted, the power companies appear before the Congressional committees urging revocation of the appropriations.[13]

Various devices have been employed by the power companies whereby the power would actually be sold to them, so that they might sell it to preference customers, or to limited groups of preference customers. In addition to press and radio, the power companies invoke every possible authority to aid them in the fight against public power. They have combined to oppose appropriations for transmission lines and for "revolving" or "continuing" funds necessary to carry out the marketing functions of the Interior Department on a business-like basis. They have invoked the aid of state regulatory agencies to prevent cooperatives from availing themselves of loans

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[12] Hearings on Second Supplemental Appropriations for the fiscal year 1951, 81st Congress, 2d Session. House Hearings, pp. 87–89; Senate Hearings, p. 345. For a combined effort of power companies in this respect, see House Hearings on Interior Department Appropriations for 1953, pp. 1533–1572.

[13] Hearings on Interior Appropriations for the fiscal year 1952, House Hearings, p. 1455; Senate Hearings on H. R. 3790, 82nd Congress, 1st Session, pp. 980–992.

from the Rural Electrification Administration for the purpose of constructing generating and transmission facilities. They have sought the aid of the Federal Courts to invalidate any effective plans for making power available to rural cooperatives.

Because of the foregoing, the contracts entered into fall short of giving full effect to the standards and limitations prescribed by law. This is reflected in the percentage of power sold to preference customers in the fiscal year 1951.

	Sales to public bodies and cooperatives (kw.-hr.)	Total sales (kw.-hr.)	Percent
Bureau of Reclamation	3,039,024,683	8,595,471,000	35.4
Bonneville Power Administration	3,414,413,000	15,079,236,749	22.6
S. W. Power Administration	74,237,622	488,145,365	15.2
S. E. Power Administration	[1]482,880,700	600,822,800	80.4
Total	7,010,556,005	24,763,676,000	28.3

[1] These are sales of power from the Cumberland basin projects to the TVA, which in turn sells power to public bodies and cooperatives and to others.

In the last analysis, most of the power companies do not enter into wheeling arrangements with the Government; that is, arrangements to transmit power for the Government at a given rate per kilowatt hour. They enter into contracts whereby power is transmitted to the Government's customers through the sale or interchange of power between the Government and the private power companies. The result is that in some contracts the power companies limit the classes of customers to whom they would deliver power, a situation resulting in discrimination as between Government customers, or in division of territory

for rendering service. In practically all such contracts the companies insist on being paid for transmission, not in money, but in power and energy, a situation resulting in giving them *pro tanto* a preference in the disposition of power.

[23] ROANOKE RIVER, VA.

Senator OVERTON. The next project would be the Roanoke River, Va., would it not?

Colonel GOETHALS. That is correct, sir. Mr. Chairman, this report of which I am about to give an abstract has just been cleared by the Budget. We have not yet received the full letter of comment, but have been advised that it is in accordance with the program of the President, but no construction work to be undertaken until after the war emergency, and also bringing out certain recommendations of the Budget with respect to provisions to be made for the future sale of power. I make that statement in prefacing my remarks because the report has not yet reached Congress, but probably will tomorrow or the day after.

Senator OVERTON. All right. Has the Budget approved it yet?

Colonel GOETHALS. Yes, sir.

Senator OVERTON. It has approved it?

Colonel GOETHALS. We have that advance word.

This report is prepared under the provisions of Flood Control Act of 1936, Flood Control Act of 1938, Flood Control Committee Resolution of August 28, 1940, and River and Harbor Commit-

tee resolution of January 26, 1942. We are describing portions of Virginia and North Carolina, in the Roanoke River Basin. This river rises on the eastern slope of the Appalachians in south-central Virginia, flows 410 miles in a generally southeasterly direction into Albemarle Sound, 7 miles northeasterly from Plymouth, N. C., and roughly 60 miles down the coast from Norfolk, Va.

It is formed by the junction of three small tributaries; and the section of the Roanoke River between the mouth of the Dan River and the mouth of the Pigg River, at mile 310, is known locally as the Staunton River. For a distance of 130 miles above the mouth the river flows on easy slopes through the flat, featureless coastal plain, with a flood plain ranging from 1 to 6 miles in width. The population is 663,000 in the basin, 56 percent of which is rural.

Senator OVERTON. That is the whole basin or the lower basin?

Colonel GOETHALS. The whole basin, sir.

The principal cities in the basin in Virginia are Roanoke and Danville, and the principal one in North Carolina within the basin is Reidsville. The principal industries are textiles, pulp, paper, rayon, building materials, and furniture. The principal agricultural pursuits are stock raising, tobacco, cotton, peanuts, potatoes, grain, and fodder [24] crops. The manufactured products had a total value of $232,000,000 in 1939, and the farm products, $59,000,000.

There is no existing Federal flood-control project in the Roanoke River Basin. There is an existing Federal project for improvement of

Roanoke River for navigation, which generally is provided now up as far as Weldon, 131 miles from the mouth of the river, at various depths as you proceed upstream.

All parts of this basin are subject to severe storms and damaging floods, which may occur at any time of the year; 39 floods exceeding a 40-foot stage, and 163 exceeding a stage of 31 feet at Weldon were recorded between 1899 and 1940. In the lower section of the river the area subject to inundation is 1 to 6 miles in width.

Senator OVERTON. Is that lower area under cultivation?

Colonel GOETHALS. Yes, sir; it is, to a considerable extent.

Senator OVERTON. Is it marshland?

Colonel GOETHALS. Some is marshland, but there is also considerable cultivation in that area, sir; a great deal of swamp and marshland, however, especially in the lower reaches near the sound.

The greatest known flood in the Smith River Basin was in 1889, and the flood of 1940 in August was the greatest of record in the valley of the Roanoke proper, which flooded 356,000 acres of land and numerous industrial plants, causing monetary damages of nearly $5,300,000. It is estimated that average annual flood damage in the basin totals near $525,000.

The plan of improvement provides for 11 dam and reservoir projects for flood control and power development and other uses, and consists of the following recommended reservoirs: Buggs Island, Gaston, Roanoke Rapids, Smith Mountain, Leesville, Tabor, Melrose, Randolph, Philpott, Stuart,

and Schoolfield. It is recommended that this general plan of development outlined be adopted as the basis for improvement step-by-step of the Roanoke River and tributaries for flood control and navigation and other purposes, and that the two reservoirs, Buggs Island and Philpott, be authorized by Congress for construction as the initial step with modifications thereof as in the discretion of the Secretary of War and the Chief of Engineers may be advisable, at an estimated cost of $36,140,000 for construction and $164,100 annually for operation and maintenance.

Senator OVERTON. Are those the only two reservoirs that are recommended to be authorized in this bill?

Colonel GOETHALS. Those are the only two recommended to be authorized in this bill. The report recommends that Congress approve the general plan of development, but at this time authorize only those two reservoirs in the amounts stated.

Senator BURTON. Do I understand the amount for those two is $36,000,000?

Colonel GOETHALS. Yes, sir; $36,140,000. They develop a favorable cost-to-benefit ratio, Buggs Island, of 1:1.35, and Philpott Reservoir, 1:1.44. As these are purely reservoir projects, local cooperation is not required for this plan.

It may be of interest to note as a special feature of this project that the present installed hydroelectric capacity in the basin is 33,200 kilowatts. The Federal Power Commission estimates that there will be needed by 1947 in the logical postwar development a total of [25] 700,000 kilowatts. This plan, the over-all plan, provides for a total

capacity installed finally of 386,300 kilowatts, of which the initial reservoirs recommended would provide 94,500 kilowatts.

The Federal Power Commission concurs in general with the conclusions of this report, and suggested that when the design stages approaches consideration be given to minor modifications with respect to the crest gates and the number thereof. It generally concurs in the findings of the report that has been described.

Otherwise, sir, there were no unusual features to bring to your attention.

Senator OVERTON. What is the estimated cost of the over-all plan?

Colonel GOETHALS. The over-all estimated cost for all 11 projects is $124,000,000.

Senator OVERTON. Will there be any levee construction?

Colonel GOETHALS. No, sir; not in this plan.

Senator OVERTON. No revetments?

Colonel GOETHALS. No, sir.

Senator OVERTON. No channel rectification?

Colonel GOETHALS. No; purely a reservoir proposition. Local protection works of course have been provided in various sections by local interests but when I answered your question I meant Federal steps in that respect.

Senator OVERTON. Yes; my question was confined purely to the Federal works. All right. Are there any questions?

Senator BURTON. May I ask, what are the major items of the $36,000,000 expenditure for these two projects? What is the major feature that makes it $36,000,000?

Colonel GOETHALS. The acquisition of lands and actual construction cost of the two dams. It is largely the construction cost.

Senator BURTON. As between the two, is it mostly acquisition of land, that goes up there, or is it mostly for construction of dams?

Colonel GOETHALS. It is mostly construction cost; almost entirely, sir.

Senator OVERTON. Is there any local opposition?

Colonel GOETHALS. No, sir. The people in the basin are generally in favor, and they have worked with our district engineer and division office. They are generally in favor of this development.

HEARINGS BEFORE THE COMMITTEE ON PUBLIC WORKS, HOUSE OF REPRESENTATIVES, 81ST CONGRESS, 1ST SESSION, ON H. R. 5472 (TITLE II)

* * * * *

[2] STATEMENT OF MAJ. GEN. LEWIS A. PICK, CHIEF OF ENGINEERS, UNITED STATES ARMY

General PICK. Mr. Chairman and members of the Committee on Public Works:

I am honored to appear before you today to testify regarding the national flood-control program which is being prosecuted by the Corps of Engineers. Both literally and figuratively speaking, "much water has run under the bridges," and down the rivers, since a Chief of Engineers appeared before this committee in 1936, when Congress devised and enacted the first legislation for flood control on a Nation-wide basis. At that time, the Corps of Engineers could only advise you concerning plans for improvement of our various river basins and, as consulting engineer to Congress, give you its best opinion as to the advisability of undertaking those projects.

Today, 13 years later, the national flood-control program has grown to be the largest element of Federal public works in the United States, [3] and probably the largest single construction program in the world. It is now possible for me to present a record of past accomplishments and recommendations for the future.

I am prepared to make a general statement, including certain recommendations, at this time, and my assistants from the civil-works division of my office will be prepared to furnish you with information on individual projects and on other matters which this committee may desire to consider in connection with the flood-control program.

In my statement, I shall review briefly the following:

1. The national flood-control program.
2. The accomplishments of the program and the current flood situation.
3. The new projects recommended.
4. The project for the alluvial valley of the Mississippi River.
5. Authorizations for comprehensive river basin plans.
6. Conservation and use of floodwaters.

National Flood-Control Program

As this committee knows, the Federal interest in flood control began on the Mississippi River and the Federal Government has participated in that major project in an increasing degree since 1879. The special flood problems of the Sacramento River of California next attracted Federal attention and work on that river began after authorization under the River and Harbor Act of 1917. As I have said, however, flood control on a Nation-wide scale began only after passage of the first general Flood Control Act of 1936. The first appropriations for general flood control were made by Congress for the fiscal year 1938. Thus, actual construction on the Nation-wide flood-

control program has been under way but 11 years. This period included 5 years during which we were mobilizing and at war, when civil works were at a standstill. I feel, therefore, that noteworthy progress has been made and I wish to summarize briefly for you the flood-control program and its present status:

(a) The national flood-control program authorized and approved by Congress now includes almost a thousand projects, including the great project for the alluvial valley of the Mississippi River and the project for the Sacramento River.

(b) The present estimated cost of the national flood-control program is $7,503,000,000.

(c) The authorization for appropriation to date is $3,590,000,000. Under this authorization, Congress has appropriated through fiscal year 1949 a total of $1,996,000,000.

(d) The present status of the program may be summarized as follows:

Status	Number of projects	Estimated cost
Complete or essentially complete	256	$624,000,000
Under construction	223	4,124,000,000
Not yet started	512	2,755,000,000
Total	991	7,503,000,000

[4] (e) The 256 completed projects include 30 which will be completed during the current fiscal year. This national flood-control program comprises all types of projects ranging from small local flood-protection works to comprehensive multiple-purpose developments for the control and conservation of the floodwaters of great river basins such as the Ohio and the Missouri. Au-

thorized projects are located in 45 States and in Alaska and Hawaii.

Accomplishments

In the first general flood-control act of 1936, Congress established the national policy that the Federal Government would participate in flood-control improvements if the benefits exceeded the cost and if the lives and social security of the people were adversely affected. I wish to tell you how the flood-control program to date is measuring up to the standards set by Congress.

In the 10 years from 1938 to 1948, inclusive, the Corps of Engineers completed or placed in operation projects which have cost to date $483,000,000. Our estimates, which we believe are conservative, show that these works have prevented damages evaluated in excess of $500,000,000. Thus, they have already paid for themselves, and throughout the remainder of their useful lives will continue to return additional large dividends to the people of the United States.

The project for control of floods in the alluvial valley of the Mississippi River is now in operation, though not yet complete. In the more than 20 years since its construction began, the alluvial valley has not suffered a serious overflow. Without the project, a major portion of that rich valley would be merely a great alluvial swamp. It is difficult to estimate the benefits of this project because the entire economy of an area of 20,000,000 acres in seven States is dependent upon it. Our estimates, however, based on records of floods which have passed safely to the Gulf, show

that it has prevented damages evaluated far in excess of its cost to date.

Since the flood-control program is not complete and will not be finished for many years, we will continue to suffer flood damages, although the extent of damage will decrease as the program advances. Everyone knows about flood damage as it occurs, but little is known by the people of the damages which are prevented each year by completed flood-control works. For example, the much publicized Columbia River flood of 1948 caused property damage estimated at over $100,000,000. It was not generally known, on the other hand, that the relatively small amount of flood-control work completed in that basin actually prevented flood damages evaluated at $42,000,000.

The second criterion established by Congress for judging the value of flood-control works—the preservation of the lives and social security of the people of our river valleys—is of even greater importance than prevention of flood damage. It is not practicable to estimate the number of lives which may have been saved by completed flood-control works, but the record of past loss of life due to floods shows that this factor is of commanding importance. As an example, you will recall that hurricane-driven floods in 1926 and 1928 caused the loss of over 2,500 lives in the area around Lake Okeechobee in Florida. Since that time, the Federal Government has provided a system of levees and control works in that area in order to protect against a repetition [5] of the 1926 and 1928 disasters. A severe hurricane-driven flood occurred on Lake Okeechobee in 1947. The Federal works functioning as planned pre-

vented overflow from the lake and consequent loss of life. This is a case where the life-saving feature of flood-control works is plainly evident.

Although flood control is the primary function of this program, many other benefits accrue from flood-control projects. One of the most important of these benefits is the improvement of vast areas of our agricultural land. It is estimated that the land which is already protected, wholly or in part, by completed projects amounts to 4,000,000 acres and that the additional land that will be protected by projects started but not yet completed is 14,000,000 acres. This acreage is all in addition to the tremendous areas protected by the project for the lower Mississippi River. Other benefits from the flood-control program include navigation, the development of hydroelectric power, conservation of water for municipal, industrial, and agricultural uses, the recreational values of reservoirs, the preservation of fish and wildlife, the abatement of pollution, and the provision of improved sanitary facilities. Benefits of all these types are now being returned to the Nation from its investment in the flood-control program.

Current Flood Situation

The annual threat of floods still exists in many river and stream valleys in the United States, and will remain in a diminishing degree until the flood-control program is completed. Since the passage of the 1948 flood-control bill, the Nation as a whole has suffered no major flood. However, serious damage has occurred in certain areas and the threat of a major flood in the Midwest

has just passed with the gradual dissipation of the snow cover on the Great Plains.

In New England, major floods occurred during the closing days of December in western Connecticut and Massachusetts and in southern Vermont. The damage in the Connecticut River Valley alone from these floods is estimated at $7,000,000, and five lives were lost. The flood-control works completed and in operation saved an estimated additional amount of $11,000,000 in damage.

Damaging floods occurred along the upper Hudson River during the last part of 1948 and the first part of 1949. Some of the flood crests were greater than any of record, and the general flood situation was the worst since 1913. One death at North Adams, Mass., was attributed directly to the flood. About 2,000 persons had to be evacuated from their homes. The total flood damage is estimated at $4,600,000.

Record stages were exceeded in Georgia and Alabama during November 1948, and major flooding occurred in Mississippi, South Carolina, and portions of Tennessee. During January 1949, floods which set new records were experienced on the White and Black Rivers and tributaries in Arkansas. Flooding also occurred in Indiana, Illinois, Missouri, and Oklahoma. In the Missouri Basin during March and April 1949, some flooding of major streams and tributaries occurred in Montana, North Dakota, South Dakota, Iowa, Nebraska, and Kansas, as a result of melting snow and ice jams with damages to croplands, highways, and railways.

As you know, those of us who have been concerned with flood control have been figuratively

holding our breath in anticipation of the [6] possibility of great floods in the West and Middle West which might, under certain weather combinations, have resulted from the abnormal snowfall of this past winter. I am glad to report that at the present time the danger of these great floods has passed, although some floods may yet occur on the Pacific coast. Speaking from a personal knowledge of conditions in the Plains States during the past winter, I can say that if we had experienced flood-producing weather this spring, and if great floods had been added to the burden which the people in that area had to bear last winter because of the heavy snowfall and blizzards, untold hardship would have been caused throughout the entire Middle West.

In the area farther south, where the high Rocky Mountains feed the Rio Grande, a very grave threat hung over the heads of the people in the Rio Grande Valley because of the abnormally great snow depth and water content. Conditions were such that the record flood heights of 1941 might easily have been exceeded and the flooding of communities along the Rio Grande, particularly the city of Albuquerque, would have been disastrous. Again, fortunately, rapid thawing and heavy rainfall did not occur to make the flood threat a reality.

New Projects Recommended

As you know, it is not economically or physically possible to eliminate all flood damage in the United States, but it is our responsibility to advance toward this ideal condition as rapidly as Congress desires. Congress authorizes us to con-

tinue specific examinations and surveys for flood control and related water uses; and as a result of this survey program the flood problems of a large number of rivers are under study, and it is possible for me from time to time to recommend additional meritorious projects for your consideration.

At this time, I understand that your schedule of hearings calls for consideration of 18 new projects, which have my favorable recommendation. The status of reports on these projects is as follows:

Transmitted to Congress	8
With the Bureau of the Budget en route to Congress	9
With governors of affected States for review	1
Total	18

The report still with the affected States for review is that on the comprehensive plan for the Columbia River Basin. In addition, since your schedule was completed, the report on the Genesee River in New York has been completed and forwarded to the Bureau of the Budget. The total estimated cost of the projects recommended in these 19 reports, including the Genesee, is $1,855,000,000. Representatives of my office will be prepared to discuss these new projects with you on appropriate days during these hearings.

In addition, over 30 favorable reports have been completed by our field offices and are now in various stages of completion in Washington.

Alluvial Valley of the Mississippi

No statement on flood control would be complete without mention of the project for the alluvial valley of the Mississippi River authorized

May 15, 1928. The initial success of the limited plan adopted in that basic act was such that the project has been subsequently [7] modified and expanded to afford protection to a much larger portion of the alluvial valley.

These modifications and expansions have included harbors, major drainage, channel, and water-supply improvements in tributary basins of the alluvial valley where justified in accordance with existing law in order to realize the full benefits of the Federal investment already made in protecting these areas from direct overflow of the main Mississippi River. The latest modification of the adopted project is that made in the Flood Control Act of 1948, which provides for improvement of west Tennessee streams, the Devils Swamp Barge Channel at Baton Rouge, and for improvement of the L'Anguille River in Arkansas.

The present estimated cost of the project for the alluvial valley is $1,265,000,000. The total present monetary authorization is $1,038,000,000, of which the balance remaining to be appropriated after fiscal year 1949 is about $411,000,000. The president of the Mississippi River Commission will be present at the hearings on the days scheduled for the Mississippi Valley project and will be prepared to give detailed information on the present status of the several features of the project as well as information on prospective progress and future needs. I would, however, like to mention briefly the need for further modification of this project in several of the seven States which depend on it for protection.

The principal modifications now recommended will provide for flood protection and major drainage for the Red River backwater area of Louisiana, the St. Francis Basin in Missouri and Arkansas, and the Cache River and Bayou De View in Missouri and Arkansas; and provide for flood control and agricultural water supply in the Grand Prairie-Bayou Meto area, Arkansas. A substantial increase in the authorization for this comprehensive project will also be recommended to reduce the differential between the authorization and the present estimated cost.

Authorizations for Basin Plans

I have noted that this committee has scheduled for consideration additional authorization for appropriation for most of the comprehensive river basin plans which Congress has approved to date. These basin plans are a vitally important part of the national flood-control program. The plans have been prepared at the specific request of Congress, which has properly required the Corps of Engineers to include in its studies all aspects of water-resource development and control. In this way, the subject of flood control is not treated separately but is combined in an over-all study which takes into account navigation, water supply, power development, pollution abatement, recreation, soil and water conservation, fish and wildlife interests, and all of the multitudinous aspects of truly comprehensive river basin planning. This approach, of course, is not confined to the over-all basin plans of the Corps of Engineers but is the same approach used in our individual project studies.

The approved comprehensive river basin plans afford a means whereby the affected States and local interests in the basins can cooperate with the Federal Government in a truly democratic manner in the development, conservation, and use of their water and land. [8] Under this system, the States retain control of their water resources while participating in the Federal development program.

The 13 river basin plans which you have scheduled for consideration range from the Connecticut in New England to the important river basins of the Pacific coast and may be summarized as follows:

Present total estimated cost	$4,326,000,000
Estimated cost of work completed and under way	1,923,000,000
Total monetary authorization to date	1,480,000,000
Funds appropriated to date	781,000,000

You will note that monetary authorizations made by Congress to date are in excess of appropriations but that the authorization falls short by $443,000,000 of covering the cost of work completed and under way, and is not adequate for the initiation of new work.

This situation varies from basin to basin, but the Missouri River plan may serve as an illustration. In this case, the monetary authorization is $366,000,000, while the total cost of work completed and under construction is $757,000,000. This means that, unless additional monetary authorizations are made, the work under way, including such major dams as Garrison, Fort Randall, and Oahe, may have to be curtailed because of lack of authority for appropriations.

I consider it essential, therefore, that our present monetary authorization for river-basin plans

be increased so that we may proceed with the logical and orderly planning and construction of these improvements. This is particularly vital in view of the fact that, although the appropriations are made on a yearly basis, the major authorization bills are passed at less frequent intervals and must, therefore, give consideration to the preparation of budget estimates several years hence. To that end, therefore, we are requesting additional river-basin authorizations in the amount of $1,261,000,000, which we feel will give us sufficient leeway to continue with the planning of projects and the work of construction for several years or until a new authorization bill is considered.

Water Conservation and Related Matters

Hydroelectric power: The development of economical hydroelectric power is a most important byproduct of the national flood-control program. Power installations now authorized by Congress under the general flood-control program will result in an ultimate installation of 5,000,000 kilowatts. The total power installation at completed flood-control reservoirs today amounts to 106,000 kilowatts. This will increase to 2,069,000 kilowatts by 1954. In view of the general power shortage throughout the Nation, and the desirability of developing to the utmost all our natural resources to meet any emergency, it is time that we harnessed for productive work the destructive floodwaters that have wasted into the ocean year after year, leaving death and destruction in their wake.

Reservoir management: Another important aspect of most multiple-purpose reservoirs is the

recreational potential inherent in large bodies of water, especially in areas devoid of natural lakes. With proper reservoir management, this potential can be converted into a public recreation program of great importance to the local people. When ready access to the reservoirs is provided, they are extensively used for hunting, fishing, boating, camping, picnicking, and other [9] forms of outdoor recreation. Further recreational benefits may be obtained at these reservoirs through sound planning and active participation by State and local agencies and private capital. The success of the program to date is indicated by the fact that public attendance at completed reservoirs of the Corps of Engineers is exceeding greatly our estimates.

Small flood-control projects: Section 205 of the Flood Control Act of June 30, 1948, provided authorization for small projects costing not more than $100,000 without the necessity of the formal preliminary examination and survey report procedure. The over-all limitation on the total cost of all such projects in one fiscal year was placed at $2,000,000. I would like to ask the committee to consider the advisability of raising the ceilings from $100,000 to $200,000 for the individual projects and from $2,000,000 to $4,000,000 for the over-all program in any one fiscal year. I believe that the purpose of the original legislation can be much better served if these increased authorizations are available since there are a large number of worthy projects in this category.

International conferences: From time to time, the attendance of properly qualified engineers of the Corps of Engineers at the important inter-

national engineering conferences held abroad has been authorized through special provisions in appropriations acts. I believe it appropriate at this time for the committee to consider the desirability of including general language in an omnibus bill to permit specialists in the Corps of Engineers to attend these conferences outside the United States so that full advantage may be taken of the advances in engineering techniques made in other countries. This language should, of course, include a limitation on the number of persons and the amount of funds to be expended for this purpose.

It would be appropriate at this point for me to mention to the committee the fact that accomplishments of the national flood-control program to date represent the coordinated effort of the engineering and contracting fields. The organization of the Corps of Engineers, which is made up largely of civilian employees, plus a small group of officers on assignment, has been ideally suited to the requirements of the program which depends upon the enlistment of the facilities of private engineers, architects, and contractors. The joint effort of the military and civilian government engineering forces and the private counterpart in the engineering and construction fields has made possible the advancement of the program to the extent that it exists today. It is these men who have been responsible for translating in terms of concrete and steel the goal of flood-control so wisely established by Congress in the national flood-control laws.

At the request of the chairman of the committee, and in view of the fact that I am to be

away on the 20th, before I conclude my remarks and inasmuch as I will be unable to be present when the committee considers plans for the Columbia Basin, I am very glad to accept the invitation of the chairman that I take this opportunity to present a brief summary of the situation for that area.

The needs and possibilities for land and water resource development of the Columbia River Basin are among the greatest in the Nation and the plans for this area which will be brought to the attention of the committee are of far-reaching significance to our national welfare. [10] In 1932, comprehensive plans were presented in the 308 reports on the Columbia Basin, including the Snake River. Since that time, the dam, navigation locks, and power plant at Bonneville were built by the Corps of Engineers, the great power plant at Grand Coulee has been placed in operation by the Bureau of Reclamation, and progress has been made on irrigation of a vast area in central Washington, important multiple-purpose projects have been developed in the Willamette, numerous smaller projects for all purposes have been completed. There are 600 water-use projects, large and small, in operation in the basin. Additional projects, such as McNary Dam, Chief Joseph Dam, Lucky Peak Dam, and the Snake River navigation project are under construction or authorized.

Although a large amount of work has been done, the Pacific Northwest has been developing at an appreciably higher rate than the average for the Nation. Its needs for water-resources develop-

ment are great and its potential is fortunately greater.

Since 1943, at the request of Congress, the Corps of Engineers has been reviewing the original comprehensive plan and bringing it up to date in the light of the tremendous strides of recent years toward full economic utilization of the vast potential of the region. Our report on this comprehensive review is now before the governors of the Columbia Basin States and the Federal agencies concerned, for comment prior to formal transmission to Congress. An interim report on the Albeni Falls projects is now before the Congress.

This 308 review report has been prepared through continuous consultation and in close harmony with all interested and affected agencies, Federal, State, and local. More than 30 public hearings were held in areas covering the entire basin. Four hearings were held in the basin by the Board of Engineers for Rivers and Harbors to obtain views on the completed plan. The needs and views of the many conflicting interests involved in a comprehensive river-basin plan have been so well correlated that there is universal approval of the report in all major respects.

Our comprehensive plan calls for a system of major reservoirs for the main control plan, and subbasin plans, notably the Willamette, which provide for reservoirs for all purposes and for local flood-protection works, including levee protection for the lower Columbia main stem. The estimated cost of this phase of the plan is $1,570,000,000. These works have been integrated with the related

programs of other agencies for irrigation, power transmission, soil and forest conservation and development, fish and wildlife improvements, recreation and other purposes.

For flood control, the need for which was emphasized dramatically and tragically in 1948, the plan provides positive control of flows of the greatest magnitude known on the lower Columbia and major tributaries and a high degree of control on all tributaries to the extent justified.

Power generation capabilities will be increased by approximately 6,000,000 kilowatts as required to meet the demands foreseeable by Federal agencies and public and private utilities in the area.

Navigation will be extended inland to Lewiston, Idaho, on the Snake and to Harrisburg, Oreg., on the Willamette.

[11] The irrigation program of the Department of the Interior providing new or supplemental water supplies for a million acres of land is correlated with the recommended projects.

Other purposes, such as the improvement of fisheries, necessary power transmission facilities, pollution abatement, drainage, recreational development, and soil and forest conservation and development are provided for in the recommended projects or in the correlated programs of other agencies.

The proposed plan is a sound framework for long-range development. The early accomplishment of the work provided for in this plan will prevent damaging floods and permit a realization of untold benefits in this great river basin.

Col. Theron D. Weaver, the division engineer, North Pacific division, who prepared the basic

plan and Col. William Whipple, district engineer from Walla Walla, one of his key assistants, as well as my own assistants and deputies, will be available to the committee here to explain this important comprehensive plan.

In conclusion, I want to thank the committee for the opportunity of appearing before it, and to assure its members that we will cooperate in every way to assist in discharging our mutual responsibilities for the national flood-control program. Colonel Gee, who will testify specifically on the individual projects and basins, and other members of my staff, will be available to answer any questions and to assist the committee. I will be available to the committee whenever it desires.

Mr. Chairman, that completes my official statement.

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SAVANNAH RIVER, HARTWELL DAM, S. C. AND GA.

(H. R. 2283)

(H. Doc. 657, 78th Cong.)

[37] Mr. DAVIS. Colonel Gee, I think you are prepared to take up the Savannah River project; is that correct?

Colonel GEE. Yes, sir.

Mr. DAVIS. I wish you would develop it for the committee.

The CHAIRMAN. While he is looking for that, are there any special bills for construction along the Atlantic Seaboard, including the Savannah River, pending that you want to comment on today?

STATEMENT OF LT. COL. HERBERT C. GEE, CORPS OF ENGINEERS

Colonel GEE. H. R. 2283 to provide for the construction of the Hartwell Reservoir on the Savannah River, S. C. and Ga.

The CHAIRMAN. Is that the only bill for construction that you have to comment on in those hearings for today?

Colonel GEE. No, sir.

The CHAIRMAN. Is this construction now, or preliminary examination and survey?

Mr. GEE. These are authorizations for construction, Mr. Chairman.

The CHAIRMAN. What other river is it on?

Colonel GEE. The Roanoke River. There are two bills, H. R. 3416 and 3250, both of which——

The CHAIRMAN. Will you give us copies of those, Mr. Clerk?

Colonel GEE. Both of which seek to have authorized the construction of the Smith Mountain Dam on the Roanoke River.

[38] The CHAIRMAN. Any others today?

Colonel GEE. No, sir.

The CHAIRMAN. Then you do have some preliminary examination and survey bills for today, do you?

Colonel GEE. Yes, sir; we have some miscellaneous bills: Naming of reservoirs, preliminary examining.

The CHAIRMAN. We only ask about preliminary examination, and survey. Do we have any bills for preliminary examination and survey?

Colonel GEE. I believe there are one or two in the list.

The CHAIRMAN. I did not mean to interrupt your answer to Mr. Davis' question.

Colonel GEE. H. R. 2283 has for its purpose the authorization of the Hartwell Reservoir on the Savannah River. The Hartwell Reservoir project was included in the plan approved in the Flood Control Act of December 22, 1944 and described in House Document No. 657 of the Seventy-eighth Congress, second session. The construction of the Clark Hill Reservoir on the Savannah River in Georgia and South Carolina was authorized as the initial step of the Savannah River Basin plan.

The Clark Hill project was begun in August of 1946 and is now 25 percent complete and is expected to be completed in 1953.

The Hartwell Reservoir is one of 11 reservoirs in the general plan. Economic studies show it to be the logical choice as the next reservoir to be constructed in the basin. The Hartwell project will provide for a dam across the Savannah River near Hartwell, Ga., at a site 67 river-miles above Clark Hill Dam.

The CHAIRMAN. Does it show on the map you have there?

Colonel GEE. Yes, sir [indicating].

The drainage area above the Hartwell site is 2,088 square miles. The proposed Hartwell Dam will consist of a concrete gravity structure 2,415 feet long, connecting across the rest of the valley to high ground. The total crest length of the dam will be 12,400 feet; the maximum height above the river bed, about 210 feet. At normal full pool, the reservoir will cover 56,500 acres. It will extend 7 miles upstream from the dam to the confluence of the Tugaloo and Seneca Rivers

which form the Savannah. Thence, one major arm will extend 41 miles up the Tugaloo River and another 27 miles up the Seneca. The total storage to be impounded will be 3,528,000 acre-feet, of which 850,000 acre-feet will be required for flood control and the remainder for the production of power.

The installed capacity of the generating equipment in the powerhouse at the Hartwell project will be 177,300 kilowatts.

The Hartwell and Clark Hill Reservoirs operated together will eliminate all flood damage in the flood plain between Augusta, Ga., and Savannah, Ga.; it will eliminate overflow by frequent minor floods in a large area of undeveloped land and substantially reduce the extent of flooding caused by the major floods which have a probable frequency of occurrence of less than once in 20 years.

This undeveloped land estimated at 200,000 acres will therefore be available for reclamation through major drainage works which will be necessary to permit its full utilization.

[39] The Federal Power Commission indicates that the power market for all the power produced by the Hartwell project will have developed by 1954.

The operation of the Hartwell Reservoir will increase the minimum flow of the Savannah River below Augusta from 5,300 second-feet to be provided by Clark Hill alone to about 6,200 feet. This minimum flow will insure a year-round 8-foot channel depth for navigation in the Savannah River between Augusta and Savannah;

an increase of 1 foot over that which can be assured by Clark Hill alone.

This will reduce the cost of providing a 9-foot navigation channel to Augusta by $768,000.

Recreation: Although not evaluated in dollars, a considerable and very real benefit will be derived from the recreational advantages which will be afforded by the Hartwell Reservoir. It is situated in the foothills of the Appalachian Mountains, within easy reach of the cities of Atlanta, Greenville, Spartanburg, Greenwood, and Athens. The 56,000-acre lake created by the dam will attract large numbers of people from these centers of population as well as from less urban areas who will seek rest, relaxation, and diversion on its waters and along its wooded shores.

Benefits: The net annual benefit from flood control and power which will be produced at Hartwell is estimated to be $5,096,000. In addition, there will be substantial benefits to navigation and recreation, the magnitude of which have been indicated in a general way above.

The present estimated cost of the Hartwell project is $68,377,000 of which $51,280,000 is for construction, $9,863,000 for relocation, and $7,234,000 for land.

The estimated annual costs of $3,156,000 apply. The flood-control and power benefits alone give a benefit-cost ratio of 1.61 to 1.

The Corps of Engineers favors authorization of the Hartwell project.

Mr. DONDERO. What was that benefit-cost ratio?

Colonel GEE. That was 1.61 to 1, sir.

Mr. DONDERO. Is this entirely power?

Colonel GEE. This project is practically 97 percent power, Mr. Dondero.

Mr. DONDERO. With nothing in it so far as navigation is concerned?

Colonel GEE. The incidental benefit to navigation I have described as being a saving in first cost on the navigation project to Augusta in the amount of $768,000.

Mr. DONDERO. In the nature of increasing or stabilizing the flow of water in the Savannah River?

Colonel GEE. Yes, sir.

Mr. DONDERO. You are depending upon the income of population to come to this area to make it pay?

Colonel GEE. In the opinion of the Federal Power Commission, whose statement was cited here, we are depending upon the industry growth of this area to create a demand for the power which will be generated by this project. It is their estimate that the need for this power will exist by 1954 after the completion of all presently authorized projects and all presently planned projects to be constructed with private capital.

Mr. DONDERO. The demand is not present at the moment?

[40] Colonel GEE. No, sir.

Mr. DONDERO. For the power?

Colonel GEE. No, sir.

Mr. DONDERO. Is there any company in that area now serving the people who could furnish that power if this project was not built?

Colonel GEE. It is my understanding that the system of the Appalachian Power Co. does include

a portion of the area which would be served by the Hartwell project.

Mr. DONDERO. Are there any lines now constructed in that area?

Colonel GEE. A portion of that area, Mr. Dondero.

Mr. DONDERO. About how much?

Colonel GEE. I do not know, sir.

Mr. DONDERO. Their amount of the investment in that area, would that be taken over by the Government, or parallel lines be constructed to put them out of business?

Colonel GEE. No, sir; the authorization sought here is not for the construction of a distribution system, but rather a generating facility to be tied to privately owned distribution facilities or publicly owned facilities if they are separately authorized.

Mr. DONDERO. Have you made any estimate as to about what portion of the power could or would be sold to private interests and what proportion would be public power?

Colonel GEE. No, sir; that is not a matter for the Corps of Engineers to decide under the law. It is the responsibility of the Department of the Interior, Division of Power, to market power generated at projects constructed and operated by the Corps of Engineers.

Mr. DONDERO. You have no information for the committee as to what amount of this power could be purchased by private utilities if they seek to buy it?

Colonel GEE. You can cite projects that range all the way from 100 percent to a single private

utility down to none at all to private utilities. The one I have in mind is the Alatoona Dam where a contract was recently negotiated between the Department of the Interior and the Georgia Power Co., to sell the entire output of the Alatoona power plant to that utility company.

Mr. DONDERO. That is the finest statement I have heard in a long time on this public power question. In other words, private power is going to buy this additional power generated by Government dams?

Colonel GEE. That is correct, sir.

Mr. DONDERO. That was the argument that we had here 2 years ago.

Colonel GEE. They are going a step further than that, Mr. Dondero, in that the existing distribution systems of private power companies are being used as feeder lines to supply federally financed REA districts, the situation being that the distribution system of the private company is in existence. Why, therefore, should we parallel that with a federally financed distribution system when we could just as well use that existing line to get the power to the point of consumption?

Mr. DONDERO. That seems sensible to me.

Colonel GEE. That is the way the thing is working out in actual practice today, sir.

Mr. DONDERO. In other words you are not displacing private investment already made by power companies in the building of this [41] dam, but you will permit them to buy at the dam some of this power which is publicly produced.

Colonel GEE. Yes, sir; and in addition, contract with them as common carrier to take a

certain block of power and deliver it to an REA district.

Mr. DONDERO. In other words, we have two theories here: One, that private enterprise should be preserved, protected, and defended. The other theory is to produce public power, in competition with private enterprise. If that philosophy is carried out, then private enterprise must die. But if they are permitted to buy power, we are still preserving the system that made America great.

Colonel GEE. That is correct, sir; and as long as the rate-establishing agencies exist in the various States within the power areas affected by these major projects, I am confident the States will take steps to see that private industry does not disappear from the scene.

Mr. DONDERO. I am gratified and pleased with your amendment, Colonel.

Colonel GEE. I am glad to hear that, sir.

Mr. DAVIS. Are there any questions? Mr. Larcade?

Mr. LARCADE. Yes, I would like to ask a question.

I am not clear on this project, Colonel. I would like to know if this is one of a system of similar projects on this river?

Colonel GEE. This is one project of a group of 11 projects, reservoirs, which constitute the approved comprehensive plan for the Savannah River Basin as approved by the Congress in 1944.

Mr. LARCADE. How many have been constructed, if any?

Colonel GEE. The first reservoir, Clark Hill, is now under construction.

Mr. LARCADE. Thank you.

The CHAIRMAN. Mr. Chairman, with your permission in this connection that was suggested by Mr. Larcade, if you will permit, I think maybe we should develop your question a little further about this statement and question.

Colonel, as you indicated, the general plan for the comprehensive development of the Savannah River, as reported in House Document No. 657, Seventy-eighth Congress, second session, was approved in the act of December 22, 1944, and that act authorized $35,300,000 for the completion of the Clark Hill Reservoir, 1 of the 11 reservoirs in that plan; is that correct?

Colonel GEE. That is correct, sir.

The CHAIRMAN. How much has been appropriated and how much thus far, including the appropriations for the current years for the construction of this project, Clark Hill?

Colonel GEE. There has been appropriated for Clark Hill project——

The CHAIRMAN. Including the present year.

Colonel GEE. Including the present fiscal year, 1949, $18,200,000, Mr. Chairman.

The CHAIRMAN. You said the project was about one-fourth complete; is that correct?

Colonel GEE. Yes, sir. At the end of this fiscal year I indicated it would be 25 percent complete.

The CHAIRMAN. What, therefore, will be the present estimated cost of the Clark Hill project as authorized in 1944.

[42] Colonel GEE. The present estimated cost of the Clark Hill project is $76,000,000. The dis-

trict engineer's report was prepared and at that time the cost index compared with that of today in this way——

The CHAIRMAN. Colonel, the estimated cost of this project when it was adopted was $36,500,000 and now you say the estimated cost——

Colonel GEE. Now $76,000,000, sir.

The CHAIRMAN. And how do you account for the difference between the estimated cost and the actual cost?

Colonel GEE. Basically, the difference in cost is accounted for by a change in cost index figures from 1941 when this report was written, to the present time, 1948, in the amount of 102.9 percent.

The CHAIRMAN. There has been an increase in cost of over 100 percent.

Colonel GEE. Yes, sir.

The CHAIRMAN. This further question. You were testifying about this matter under H. R. 2283, and that bill is as follows:

> That the Hartwell Reservoir on the Savannah River, S. C. and Ga., a unit in the comprehensive plan of improvement for the Savannah River Basin approved by the Flood Control Act of December 22, 1944, is hereby authorized substantially in accordance with the recommendations of the Chief of Engineers in House Document No. 657, Seventy-eighth Congress, second session, at an estimated cost of $52,000,000.

Colonel GEE. The project is a part of the approved plan, sir.

The CHAIRMAN. What you mean by that to say, let us understand what you mean. Is not

the word "approved" an authorization for the plan but without appropriation, or without an authorization for the appropriation?

What is the difference between approving and authorizing a plan?

Colonel GEE. We have never construed the approval of the plan to carry with it the authorization to construct the elements of that plan.

The CHAIRMAN. Nor do we. Is it not always necessary under the act of 1944, in order to provide for Hartwell or any other reservoir, to increase the authorization from $36,500,000 to enough to build another dam and complete that dam? Without anything further?

Colonel GEE. That is correct, sir.

The CHAIRMAN. So that plan has this reservoir which has already been approved; is that right?

Colonel GEE. Clark Hill Reservoir?

The CHAIRMAN. I am talking about Clark Hill.

Colonel GEE. Yes, sir.

The CHAIRMAN. We approved the entire plan, approved all the 11 of those reservoirs and authorized Clark Hill?

Colonel GEE. That is correct, sir.

The CHAIRMAN. So all you have to do to provide for Hartwell or other dams is to increase the authorization sufficient to provide for another dam after you have completed the Clark Hill Dam?

Colonel GEE. That is correct, sir.

Mr. DONDERO. I suggest we recess for 15 minutes, if that is agreeable.

(A 15-minute recess was taken at 2:55 p. m.)

The CHAIRMAN. The committee will be in order.

Colonel Gee, the general plan for the Savannah River having been approved, the only thing that is necessary in order to provide for the [43] construction of other dams and reservoirs under that plan is additional authorization and if it is desired that that authorization be applied to any one dam it can be so stated in additional authorization, is that true?

Colonel GEE. That is correct, sir.

The CHAIRMAN. So that as far as the plan and so far as the dams themselves are concerned, Congress has already approved the over-all plan?

Colonel GEE. Yes, sir.

The CHAIRMAN. And it is not necessary for Congress to make any further approval? That is, for those plans to be enforced as far as the Congress is concerned, and it is only necessary to authorize money for their constructed?

Colonel GEE. Yes, sir.

The CHAIRMAN. Now, then, under the plan that was adopted and authorized in the act of 1944, authorized substantially in accordance with the recommendations of the Chief of Engineers, document mentioned $36,300,000. Is it necessary that there be any other or further authorization in order for the Congress to be authorized to appropriate the money with which to complete the Clark Hill Reservoir?

Colonel GEE. No, sir.

The CHAIRMAN. In other words, the estimated cost is broad enough to include the increased cost of 100 percent?

Colonel GEE. That is correct, sir.

The CHAIRMAN. And it is also broad enough to include whatever reduction may be made in the

completion of the remaining three-fourths of the project?

Colonel GEE. Yes. sir.

The CHAIRMAN. Under the adopted project in this document, the Chief of Engineers recommended first that the unit of the Clark Hill Reservoir be included and approved and authorized and then other units in the order recommended by the district engineer. That is substantially the recommendation, is it not?

Colonel GEE. Yes, sir. I read the report:

> That the general plan for the development outlined in the report of the district engineer be adopted as a basis for the improvements step by step of the Savannah River and tributaries for power, flood control, navigation, and other purposes, and that the Clark Hill project be authorized for construction on the initial step in accordance with the plans of the district engineer and my comments herein, and with modifications thereof as in the discretion of the Secretary of War and the Chief of Engineers may be advisable at an estimated cost of $35,500,000.

Under that report, H. R. 657, Seventy-eighth Congress, the next reservoir recommended by the district engineer and approved by the Chief of Engineers for construction, reading from page 53 of that document, Mr. Chairman, I read this sentence:

> The study shows that for best results the developments should be constructed in the following order: Clark Hill, Hartwell, Goat Island, Middleton Shoals——

The CHAIRMAN. And then in the order named to include all 11 of them.

Colonel GEE. Yes, sir.

The CHAIRMAN. As shown by the report, what was the estimated cost of the Hartwell Dam at the time?

Colonel GEE. About $32,000,000. I will check the figure, sir.

[44] The CHAIRMAN. Let somebody else do the checking. What is the estimated cost now?

Colonel GEE. Now, $68,000,000.

The CHAIRMAN. That dam is located how far from Anderson, S. C.?

Colonel GEE. About 20 miles, or less, sir.

The CHAIRMAN. Between Anderson, S. C. and Athens, Ga., the Savannah River is the boundary? And am I correct in my recollection that the Clark Hill Dam is located between the highway that extends from Anderson and Athens and the ocean, down the river?

Colonel GEE. It is 67 miles from Hartwell down to Clark Hill, down the river, sir.

The CHAIRMAN. This Hartwell is 67 miles above and Hartwell is above the highway going from Anderson over to—is that 239 or what is it?

Colonel GEE. No, 29, sir.

The CHAIRMAN. It is above 29.

Colonel GEE. Three miles below the highway leading from Hartwell to Anderson.

The CHAIRMAN. Hartwell Dam?

Mr. BROWN of Georgia. That's right.

The CHAIRMAN. How many miles below that to Clark Hill?

Mr. BROWN. Down to Clark Hill, 67 miles.

The CHAIRMAN. How many of these 11 dams are above that highway, or do you remember generally, Colonel?

Colonel GEE. This is the uppermost project in the approved plan for the basin, the Hartwell project.

The CHAIRMAN. This is primarily a power project?

Colonel GEE. Yes, sir.

The CHAIRMAN. No further questions, Mr. Chairman.

Mr. DAVIS. Is there any question on the part of you gentlemen?

Mr. PICKETT. What is the estimated total cost of the entire 11 projects as it was projected in the report, Colonel?

Colonel GEE. I will get that figure from the report, Mr. Pickett.

Mr. PICKETT. How many of the rest of that 11 are solely power and how many of them are multipurpose, flood control and power and navigation?

Colonel GEE. The remaining nine projects in the plan are power projects.

Mr. PICKETT. All power alone?

Colonel GEE. Yes, sir.

Mr. PICKETT. Then your chief multipurpose and the only multipurpose plan in that project is Clark Hill, is that correct?

Colonel GEE. Clark Hill and Hartwell, there being flood-control benefits from both Hartwell and Clark Hill.

The CHAIRMAN. As I understood you to say, Clark Hill is 97 percent power.

Colonel GEE. There is very minor flood-control benefit from Hartwell, sir.

Mr. PICKETT. Incidental navigation benefits?

Colonel GEE. Yes, sir.

Mr. PICKETT. Your testimony, I believe, was that construction of Hartwell Reservoir would result in a saving of first cost to the United States in the sum of $768,000 in the navigation features of the project?

[45] Colonel GEE. Yes, sir. As a result of the decrease in dredging requirements.

Mr. PICKETT. Yes, sir.

The estimated total cost of the navigation feature has been presented as $3,157,000, I believe.

Colonel GEE. Yes, sir.

Mr. PICKETT. If I understand your testimony, the authorization and construction of the Hartwell Reservoir would result in a reduction of that sum of $3,137,000 to where the navigation would cost you about $2,769,000?

Colonel GEE. That is correct, sir.

Mr. PICKETT. Do you have that over-all figure at the moment that I asked for?

Colonel GEE. Yes, sir; $150,910,000 based upon 1941 cost.

Mr. PICKETT. That would be increased by 100 percent?

Colonel GEE. One hundred and two percent is the exact amount, sir.

Mr. PICKETT. Making a total cost then of a little over $300,000,000.

Colonel GEE. Yes, sir.

Mr. PICKETT. I believe that is all; thank you.

Mr. DONDERO. Mr. Chairman, I would like to ask the colonel what that $300,000,000 covers?

Colonel GEE. It includes the construction of 11 reservoirs within the Savannah River Basin, of which two, Clark Hill and Hartwell, are multi-

purpose projects and the remaining nine are straight power projects.

Mr. DONDERO. I noticed in the record, Colonel, that on November 1, last, the estimate on Clark Hill was given as $49,000,000 by Colonel Feringa and in the official list of the price for Clark Hill today of $76,000,000; you mean an increase of $29,000,000 in 6 months?

Colonel GEE. There has been a rather drastic change in the timing of the power development at Clark Hill in that we are going to install all of the units in that powerhouse immediately whereas 6 months ago it was intended we install only the first half of the powerhouse.

Mr. DONDERO. This increase includes the other installation?

Colonel GEE. Yes, sir.

* * * * *

Roanoke River, Smith Mountain Dam, Va.

[135] Mr. DAVIS. Colonel Gee, will you present this project?

May I say at the outset that Mr. Dondero may be interested in the development of this project. I am informed that in view of discus[136]sion on the Clark Hill project yesterday and the Hartwell—it is expected that the eight or nine dams for power purposes in the Savannah River are very likely to be utilized by private industry and I think Mr. Dondero should get some satisfaction out of this, and I say that with all deference to everybody concerned. If the Federal Government is under obligation to assume a greater share of the expense in providing for a multipurpose

service up the river, then after that has been done, down the river, say in these 9 cases, private industry could then come in and build the power establishments to take care of the needs of that area, I think we are getting somewhere. And that was developed, Mr. Dondero in the statements yesterday, when the first two projects, Clark Hill and Hartwell are developed, the excess cost maintained by the public at large provides an opportunity for private industry to go ahead and proceed in an orderly way under our system of private enterprise.

I think Colonel Gee may indicate progress in that direction in connection with the Roanoke River.

Mr. DONDERO. Mr. Chairman, my entire struggle over the years has been just one thing, with only one object in mind, and that is the preservation of the American free enterprise system as against public ownership. I am an enthusiast about developing power in our river valleys. I am for it. I think we must do it in order to provide the power that the Nation needs in developing our resources. Where it is different and where the philosophy seems to divide is that I am opposed to the Federal Government entering in competition with private investment by retailing this power, either to municipalities or to industry where there are already established in the area private power companies with small investors all over the Nation able to produce the power that is required without any Federal expense whatever. As long as we hew to the line of keeping the Federal Government in the wholesale power field, there is no objection on my part,

in fact there would be support, but there will continue to be objection as far as I can oppose every effort of the Federal Government to displace private enterprise and private investments and to destroy the same system that has made us so great in this Nation. That is the whole thing in a few words.

I am delighted with what our fine chairman has said because in beautiful language as he always possesses, he has announced practically the philosophy that I am trying to maintain here in my service to the Federal Government.

Mr. DAVIS. Thank you, Mr. Dondero. Of course, in rebuttal to that, it does not call at this moment for a discussion of the Tennessee Valley Authority in which we are all so intensely interested.

Colonel Gee, will you please proceed?

Colonel GEE: Mr. Chairman, there are two bills which have been introduced, one by Mr. Stanley, H. R. 3250, and one by Mr. Burton, H. R. 3416, both of which are for the purpose of permitting the construction of Smith Mountain project, one of 11 projects included in the approved plan for the development of the Roanoke River Basin.

In the Flood Control Act of December 22, 1944, Congress approved a general plan for comprehensive development of the Roanoke River Basin for flood control and conservation of water for other purposes, including the development of hydroelectric power. In accordance [137] with the recommendations of the Chief of Engineers, contained in House Document 650, Seventy-eighth Congress, second session, in the same act, Congress authorized construction of the Buggs Island

and Philpott Reservoirs as initial units of the comprehensive plan of improvement.

The Smith Mountain Reservoir project is to be located on the Roanoke River, 46 miles downstream from Roanoke, Va.; it is a unit of the recommended plan for the Roanoke River Basin. Its authorization would be a logical step in an orderly program for execution of the plan of improvement as it would afford a backlog of authorized works so that its detailed planning could be accomplished in time to place it under construction in proper sequence with Buggs Island and Philpott.

The Smith Mountain project will provide a concrete dam with a maximum height of 244 feet and a reservoir capacity of 825,000 acre-feet. It would include facilities for generating hydroelectric power with an installed capacity of 41,000 kilowatts.

The estimated cost of the project based upon 1948 price levels is $24,830,000. In the report of the Chief of Engineers to the Congress, the plan as a whole for the development of the Roanoke Basin was found to have a benefit-cost ratio of 1.47 to 1. Its evaluated benefits are largely from hydroelectric power development. But in flood-control value the Smith Mountain project ranks next in the system after Buggs Island and Philpott. I might say at this point that of the 11 dams in the approved plan, only three involve flood control. They are the Buggs Island and Philpott projects, presently under way, and the Smith Mountain project now under discussion.

The Federal Power Commission advises that the power market in the vicinity of the Smith

Mountain project will have developed sufficiently to absorb all power produced by the presently authorized works and the Smith Mountain project by 1958.

In view of the length of time required for the construction of the dam, and the installation of facilities for generation of power, it is felt there would be little, if any, lag after construction before the full capacity will be required.

Mr. Chairman, I would like to point out at this time that the authorizing of construction on the Smith Mountain project represents a deviation from the original recommendations of the Chief of Engineers when this basin plan was authorized. The reason for that deviation, as I have previously inferred, is that it is the third project in the basin involving flood control, the remaining eight being straight power projects and produce no other benefits.

Since the development of Buggs Island has begun, a private utility company has filed an application with the Federal Power Commission to develop the Roanoke Rapids project. This development of the Roanoke Rapids project is to be exactly in accordance with the project as recommended by the Chief of Engineers in this document. The hearings were conducted by the Federal Power Commission last week on that application. We have no information as to the outcome of those hearings. That project was the third project recommended in the original report of the Chief of Engineers.

The fourth project, the Gaston, it is believed that a private utility company will file an appli-

cation for the construction of that project in the near future.

[138] Mr. DONDERO. Do I understand that this explanation you are making, Colonel, is in relation to the Smith Mountain Dam proposal before us this morning?

Colonel GEE. That is correct, sir.

Mr. DONDERO. In other words, you mean to say that private power companies have made application for the right to build these dams and construct the necessary power facilities rather than the Federal Government?

Colonel GEE. Yes, sir; the Roanoke Rapids.

Mr. DONDERO. Part of the Roanoke River Basin.

Colonel GEE. One of the 11 recommended and now approved plans for the basin, sir.

Mr. DONDERO. What is the other one you mention?

Colonel GEE. The Gaston site, sir.

Mr. ANGELL. But not Smith Mountain?

Colonel GEE. No, sir. The other two are called run-of-river plants which involve little or no storage; simply utilize the head in the various rapids of the Roanoke River and are dependent upon storage such as that created in the Smith Mountain project for their operation on a year-round basis.

Mr. DONDERO. Mr. Chairman, I want to ask a considerable number of questions.

Colonel GEE. That concludes my statement.

Mr. DAVIS. Without objection from this side, we should be glad to have Mr. Dondero proceed.

Mr. DONDERO. Colonel, has there been a public hearing on Smith Mountain Dam project?

Colonel GEE. As a separate project; no.

Mr. DONDERO. When were the figures of cost you used in the estimate prepared?

Colonel GEE. The figures were prepared at the time the report was written, I believe about 1941, and have been revised by utilizing the Engineering News-Record cost index to bring them up to 1948 levels.

Mr. DONDERO. At the time that they were first estimated, the cost was $12,500,000?

Colonel GEE. That is correct, sir.

Mr. DONDERO. And now $22,000,000?

Colonel GEE. Yes, sir.

Mr. DONDERO. Do you think that is an accurate and safe figure or would it be more than that?

Colonel GEE. In view of the facts that prices have risen, as we indicated yesterday, approximately 102 percent in that same period of time, throughout the United States, we believe this estimate is quite adequate.

Mr. DONDERO. It would be a little more, possibly?

Colonel GEE. Yes, sir.

Mr. DONDERO. Colonel, is it a rule in the power field that where a kilowatt of electric energy costs more than $300 it is not economically sound?

Colonel GEE. Well, I would hate to depend for my income on a plant which cost that much to build, Mr. Dondero. I do not think you would ever get your money back.

Mr. DONDERO. That is exactly what I am driving at, Colonel. I am asking you if there is such a formula in the electric field or the [139] electrical world where a kilowatt of energy costs more than

$300 to install it, like the Smith Mountain Dam, it is not economically justified?

Colonel GEE. If your comment is aimed at the Smith Mountain project——

Mr. DONDERO. Generally, throughout the Nation.

Colonel GEE. If it is a straight run-of-river project power plant, and it does nothing but produce power, then you could not afford to build it at that cost.

Mr. DONDERO. In this particular project, I notice out of $443,000 only $10,000 is allocated to flood control, so that makes this about a 98-percent power project.

Colonel GEE. That is correct, sir.

Mr. DONDERO. Has the Governor of Virginia given his approval to this particular project?

Colonel GEE. To the entire basin plan, Mr. Dondero.

The important block of benefits which your line of questioning does not reach is that block of benefits produced by this project at all downstream power installations.

Mr. DONDERO. What I think you mean is the regular or systematic flow of the river providing stabilization.

Colonel GEE. The stream regulation produced by this plan and this dam and reservoir have a beneficial effect upon every downstream power installation in the Roanoke River.

Mr. DONDERO. In other words, from the standpoint of a reservoir or storage of water, I take it that is what you mean?

Colonel GEE. Yes, sir. There would be important benefits from Smith Mountain if no power was installed at the site.

Mr. DONDERO. Are there any private utility companies in that area capable of providing whatever electric energy is needed now or in the immediate foreseeable future?

Colonel GEE. In the opinion of the Federal Power Commission, the capacity of the private utility companies, together with all of the authorized Federal projects, will be exceeded in 1958 by the demand in the region.

Mr. DONDERO. That is, all that private utilities could produce, plus the dams that you are suggesting to this committee in this project.

Colonel GEE. That is correct, sir.

Mr. JONES. Will you yield for just a moment?

Mr. DONDERO. Certainly.

Mr. JONES. Will you indicate that on the map, Colonel—the three flood-control dams?

Colonel GEE. The little insert map shows the basin; the one to which Mr. Brennan is pointing is the Buggs Island project on the main stem of the Roanoke River at the stream to the left or the western edge of the basin.

Mr. JONES. Is it on the large map?

Colonel GEE. No, sir; the large map is simply a map of the Smith Mountain vicinity.

Mr. JONES. Thank you, Mr. Dondero.

Colonel GEE. Will you pull the small map off and pass it around for the committee? I think if the map is circulated around among the members of the committee, it will be obvious immediately.

[140] Mr. DONDERO. While he is getting the map, Colonel, is the area now being adequately served by private power companies?

Colonel GEE. The area is being served by two private utility companies, the Virginia Electric Power Co., and the Appalachian Power Co., both of which have indicated their unqualified support for the Buggs Island project and the Philpott project now under construction and have indicated they can distribute and are in the market for all of the power which can be produced by those two projects.

Mr. DONDERO. What do they say about this project?

Colonel GEE. They would be very interested in being designated to market the output of the Smith Mountain project.

Mr. DONDERO. Is there any assurance that you could give to private industry that they would be permitted to buy this power at the bus bar?

Colonel GEE. If I were the Secretary of the Interior, I could give you that; unfortunately, I am not.

Mr. DONDERO. Well, we will appoint you the Secretary. [Laughter.]

Mr. ANGELL. How much power is involved?

Colonel GEE. 41,000 kilowatts installed capacity; sir.

Mr. ANGELL. How about the power in the two dams down the river that you mentioned?

Colonel GEE. We will get that from the document in just a minute, sir.

Mr. DONDERO. Have you made any computation as to the cost per kilowatt of electric energy based upon the $22,000,000 estimated cost for this project?

Colonel GEE. It would involve first a division of benefits, Mr. Dondero, to set aside——

Mr. DONDERO (interposing). That is, eliminating the 2 percent for flood control.

Colonel GEE. No, sir—and eliminating also the benefits to downstream power plants, which are very important in this project. Every bit of water which passes from this reservoir downstream is used over again in each plant below it on the river, and the Federal Power Commission establishes the annual charge which is made against the owners and operators of all downstream plants as a result of the building of the Smith Mountain project. This is not something which the Federal Government gives away. It is an improvement to their facility for which they are required under the law to make payment to the Treasury.

Mr. DONDERO. In other words, for the amortization of the investment; that is what you are saying?

Colonel GEE. No, sir; for the actual benefit received at their existing installations for this additional water.

Mr. DONDERO. Can you say to the committee then, Colonel, that your ratio of cost to benefit would be more than the very slight edge of 1 to 1.04?

Colonel GEE. No, sir; 1.47, I indicated, I believe.

Mr. DONDERO. I thought it was 1 to 1.04.

Colonel GEE. Yes, sir; for this individual project. The figure of 1.04 is the correct ratio.

Mr. DONDERO. That margin is very, very small——

Colonel GEE (interposing). It is very difficult to locate a 4-percent investment nowadays, Mr. Dondero.

[141] Mr. DONDERO (continuing). Because if the costs increase, as it is my judgment they will increase, even above the $22,000,000, this slight edge of 4 percent might be wiped out entirely, so that you would have to evaluate perhaps some of the benefits that would accrue to the dams lower down the river from the storage of the water at Smith Mountain Dam.

Colonel GEE. There is one further check point on that benefit-cost ratio which might result in a stoppage of this project. Let us assume for the moment that the project is authorized and that planning money is appropriated for its construction. If, during the preparation of the definite project report, which means the detailed planning of this job, it should develop that the benefit-cost ratio is actually not 1.04 but, let us say, less than 1, the project would stop at that point and would not be recommended for appropriation to the Congress.

Mr. DONDERO. Have you any information as to the cost of constructing steam-power plants in the country at the present time as compared with the hydroelectric that is proposed before the committee?

Colonel GEE. We could obtain that, sir, because there is a large steam plant now under construction in the Savannah River Basin which would form a rather good basis of comparison.

Mr. DONDERO. My understanding is that it is way below the figure that has been presented to this committee, because here the figures are double what they were when the estimate was first made; that is, 1 to about 102 percent increase. My un-

derstanding is that steam construction is way below that.

Colonel GEE. The change in cost of construction of a steam-power plant does not differ greatly from the change in cost which has occurred over the last few years in the building of a large dam. Many elements that go to make up a modern steam plant have increased more in unit price than the general average of the Engineering News Record Index.

Mr. DONDERO. Do you refer to machinery?

Colonel GEE. Yes, sir.

Mr. DONDERO. That is not necessary in a hydroelectric plant.

Colonel GEE. The boilers and similar installations, sir.

Mr. DONDERO. And the engines.

I have had some information that Senator Byrd was opposed to this project. You wouldn't know about that?

Colonel GEE. We haven't heard from him with respect to it, sir.

Mr. DONDERO. I may be mistaken about that.

That is all, Mr. Chairman.

Mr. PICKETT. I understand in the over-all comprehensive plan that you have proposed 11 reservoir structures, only three of which have any part of their purpose to be flood control.

Colonel GEE. That is correct, sir.

Mr. PICKETT. And those three are Philpott, Buggs Island, and Smith Mountain.

Colonel GEE. Yes, sir.

Mr. PICKETT. Smith Mountain is the one presently under consideration, and you have under

authorization and construction both Philpott and Buggs Island.

Colonel GEE. That is correct, sir.

[142] Mr. PICKETT. What is the relative ratio of flood-control benefit and the same ratio of power benefit in your estimates on the Buggs Island construction?

Colonel GEE. Reading from the report, the flood-control benefits for the Buggs Island project at 1941 price levels, $207,000 annually; for the Philpott project, $160,000 annually, and for the Smith Mountain project, $10,000 annually.

Mr. PICKETT. Now, then, what are the power benefits in those respective reservoirs annually?

Colonel GEE. The power benefits at Buggs Island, $1,758,900; at Philpott, $145,700; and at Smith Mountain, $594,800.

Mr. PICKETT. Then the Buggs Island has approximately a 97 or 98 percent power benefit and the other 2- to 3-percent flood control; is that not correct?

Colonel GEE. Yes, sir; probably a little more flood control than you have indicated there.

Mr. PICKETT. Would it exceed 5-percent flood control?

Colonel GEE. It would be between 6 and 7, according to these figures.

Mr. PICKETT. The other two would be approaching then something in the neighborhood of 98 percent power and 2 percent flood control.

Colonel GEE. The division on the Philpott project, the total benefits are $326,000, of which flood control makes up 160. That project is between 45- and 50-percent flood control.

Mr. PICKETT. I assume then that in the evaluation of the comprehensive plan and the reservoirs proposed to be constructed under it, you have taken into account those three reservoirs we have under discussion to be the only ones that would contribute measurably to flood control and to be justified under any reasonable basis for flood-control purposes.

Colonel GEE. Yes, sir; and I believe the report so states.

Mr. PICKETT. The total cost of the over-all project, based on the figures that were accumulated in the report, is what, please, Colonel?

Colonel GEE. You refer to the complete basin plan?

Mr. PICKETT. Yes, sir.

Colonel GEE. $124,000,000, 1941 price level.

Mr. PICKETT. That would be projected then into a sum total of over $220,000,000 on the basis of the increased cost of construction since that time?

Colonel GEE. That is correct, sir.

Mr. PICKETT. Now, what is generally the idea of the Corps of Engineers as to the orderly course of development of the comprehensive plan, with a view of how many years it will require you to complete it if you had the money to proceed in keeping with the plan that you would like to follow?

Colonel GEE. If the Smith Mountain project should be authorized in this present session of the Congress, the earliest date for planning money would be next year. The earliest possible date for first construction money would be in fiscal

1952. It would take approximately four fiscal years to see the completion of that project, bringing it into the latter part of fiscal 1956. That would be the best possible speed you could expect to make on the construction of this project.

Mr. PICKETT. You would require, then, something in the neighborhood of 15 to 20 years to complete the comprehensive plan if you just took them up in the course of an orderly procedure: is that right?

[143] Colonel GEE. The comprehensive plan might never be completed, Mr. Pickett, if the demand did not arise for the power generated by the remaining eight projects in the over-all plan. Their only justification is power. If the demand is not there, it would be a mistake to build them, either with Federal capital or with private capital.

Mr. PICKETT. I believe that is all.

Mr. DAVIS. Are there any other questions?

Mr. JONES. What is the total cost of the eight projects that will be utilized for generation of hydroelectric power alone?

Colonel GEE. Approximately $120,000,000, based upon 1948 prices.

Mr. JONES. Or a little bit more than half of the total cost of the basin project?

Colonel GEE. Yes, sir.

Mr. JONES. Has it heretofore been the policy of the Corps of Engineers to undertake such constructions as this one for the sole purpose of furnishing private utilities with generating facilities?

Colonel GEE. It has been the general practice of the Congress to authorize the Corps of Engineers

to build multiple-purpose projects which produce flood-control benefits on the rivers of the United States. Where power is generated at these multiple-purpose projects, the law requires that the Department of the Interior market that power, and the method of marketing is entirely under the control of the Secretary of the Interior.

Mr. JONES. Of course, I understand that, but I gathered from your testimony that there were eight dams to be constructed, that the only benefit ratio that could be derived from those dams would be hydroelectric power and that alone.

Colonel GEE. We would be remiss in our duty as engineers serving the Congress if we did not point out to you the potentialities of the Roanoke River Basin. We have said in the report that the building of 3 of these 11 projects will produce all of that flood control which we believe to be economically justified, that the remaining 8 are straight power projects, and if it is desired that power projects be built by the Federal Government, we believe these are the sites best adapted to that purpose, and this is approximately what it will cost to develop the full capabilities of that river basin.

Mr. JONES. That is all, Mr. Chairman.

Mr. ANGELL. Colonel Gee, I understand from your statement the over-all plan, of course, is for flood control.

Colonel GEE. Yes, sir.

Mr. ANGELL. And the Federal Government's participation in it now is limited to flood control, with the exception, of course, in the building

of a dam where there is hydroelectric power in that dam, the building of flood control utilizes that feature of it to preserve the electric energy which may be produced. Now these remaining dams on the river are solely for hydroelectric power only are a part of this project by reason of the fact that the dams that are constructed up the river, for instance the one under consideration now, will provide the storage water which will be furnished to these lower dams which are limited solely to hydroelectric power.

Colonel GEE. In building a run-of-river plant, sir, you can only depend upon the natural flow of that stream, unless it is augmented by some regulatory storage, such as the Smith Mountain project up- [144] stream. That does not mean, however, that you could not build a power installation which would be economically justified and would pay out as an investment. It means, however, that you would build a smaller plant without this upstream storage and one capable of expansion when the time came that the upstream storage had actually been built.

Mr. ANGELL. By the utilization of the storage capacity of the upstream dam, such as the Smith mountain Dam, will the lower projects be provided with prime power the year round?

Colonel GEE. In a greater quantity than would be the case if you depended upon the river without regulation.

Mr. ANGELL. Is the Federal Government at the present time planning to develop any of those dams on the lower part of the river which are devoted exclusively to power production?

Colonel GEE. No, sir. They have the same status in this basin plan as the eight remaining projects. They are part of the approved plan. Their being in that plan certainly is no bar to a private utility company coming in and seeking to develop one of these projects.

Mr. ANGELL. And that is what is being done now.

Colonel GEE. That is being done now at Roanoke Rapids, sir.

Mr. ANGELL. That is all.

Mr. MCGREGOR. Colonel, I am just a little bit confused in looking at the map and trying to analyze your statement. Is this correct that your Buggs Island project on the Roanoke River and your Philpott project on the Smith River have already been authorized?

Colonel GEE. Yes, sir, and both are under construction.

Mr. MCGREGOR. Your Smith Mountain Reservoir is the one that you are now asking authorization for in concurrence with the two bills that have been introduced. Now in reply to Congressman Angell's statement, I believe you said that the over-all plan was for flood control.

Colonel GEE. The original basis for the authorization of this study was to produce flood control in the Roanoke River Basin. However, we are required to present to the Congress a comprehensive plan of the basin for the use of all its water resources, one of which is in this river basin, and a very important one, the generation of hydroelectric power.

Mr. MCGREGOR. What percent do you consider of the over-all plan is flood control?

Colonel GEE. Evaluating that only in terms of benefits to be produced by the over-all plan, approximately 5 percent of all the benefits produced by the 11 reservoirs are flood control benefits.

Mr. MCGREGOR. Then 95 percent would be power?

Colonel GEE. Yes, sir.

Mr. MCGREGOR. In the over-all plan?

Colonel GEE. Yes, sir.

Mr. MCGREGOR. Now, getting back to your Smith Mountain, I believe your statement was that 98 percent of that project was power and only 2 percent flood control; is that correct?

Colonel GEE. I think that is approximately correct, yes, sir.

Mr. MCGREGOR. Well, then, Colonel would it not develop at least 95 to 97 percent power rather than a majority of a flood control proposal?

Colonel GEE. Yes, sir. However, I said earlier that there are only three projects of any consequence in this basin which produce flood [145] control benefits—they are Buggs Island, Philpott, and Smith Mountain—and they were so indicated in the original report to the Congress on this basis.

Mr. MCGREGOR. Colonel, about 97 or 98 percent of your whole project would be power.

Now let me ask you this question. I think it was asked but I didn't get your reply clearly. In your opinion, are the needs of that area being adequately supplied now by the power developments that are privately owned?

Colonel GEE. Testimony was given by people living in the area during the hearings before the Senate Committee on Appropriations that there

exists at the present time a critical power shortage in this portion of Virginia which will be served by the Buggs Island and Philpott projects upon their completion. Numerous rural electrification district supervisors came in and indicated that they were connected but were unable to get any power at all for their districts.

Mr. McGregor. Did that testimony show, Colonel, that upon the completion of those two projects, they would be adequate, and take care of the needs of the area for power?

Colonel Gee. Yes, sir, and it is believed by the Federal Power Commission, who is the recognized authority on this matter, that the present authorized work on completion will serve the area adequately until 1958, based upon their market surveys.

Mr. McGregor. Well, then, why would you suggest we spend at least $22,000,000 for the development of the Smith Mountain Reservoir, which is 98 percent power, if the other two projects are going to adequately take care of the needs?

Colonel Gee. Because the completion will not be, in my opinion, earlier than 1958, when Federal Power indicates there will be a shortage of power in the area.

Mr. McGregor. I am afraid the testimony does not bear out the argument. That is all; thank you, Mr. Chairman.

Mr. Angell. May I ask right here is there any opposition on the part of the private utilities to the development of the Smith Mountain project?

Colonel Gee. None has come to my attention; no, sir.

Mr. MOULDER. Mr. Chairman, the questions propounded and the answers given, I think, present a novel and interesting legal problem. I know that you are not a lawyer, Colonel, but isn't it true that the streams that lie within the boundaries of all the States are the property of such States?

Colonel GEE. I think that has been ruled in many court decisions; yes, sir.

Mr. MOULDER. And that the only authority that the Federal Government has to construct dams across any of those streams is for the purpose of controlling floods and improving navigation? Is that the law of the land or not?

Colonel GEE. I believe all of our actions on streams which lie wholly within a State depend upon that in the law, unless the stream passes through more than one State.

Mr. MOULDER. That thought occurred to me. This is for my own information. I am interested in knowing what percent of the project would have to be necessary for flood control before the Federal Gov- [146] ernment would have the authority to exercise the right of eminent domain within the State. I mean by that if the State legislature or the State authorities haven't consented for the construction of the project within the boundaries of that State, what authority would the Federal Government, or any agency thereof, have to proceed to acquire property in the project area by eminent domain, without the consent of that State?

Colonel GEE. To answer your question in a very practical way and not in legal terms at all, we would not proceed with this project contrary to

the wishes of the State in which it was located, nor would the Congress direct us to so proceed

Mr. MOULDER. The point I am raising is doesn't it require a direct act of the State legislature authorizing the construction of any project across a stream within the boundaries of that State, except and only when the Federal Government is exercising its authority for the purpose of improving navigation or for flood control?

This question occurs to me: What percent of the project would have to be for flood control? In this case, the testimony indicates 5-percent flood control. Of course, you do have flood control there. It creates a very novel, legal question. I wonder what percent would have to be for flood control before it would be a flood-control project to such extent as to authorize Federal action.

Colonel GEE. We have never run into a case where this question has been raised by representatives of a State.

Mr. DAVIS. Have you any questions, Mr. Cunningham?

Mr. CUNNINGHAM. No questions.

Mr. MACK. Colonel, am I correct in the understanding that the Smith Mountain Reservoir is above all 11 potential dam sites on the river?

Colonel GEE. No, sir. Have you seen that small basin map? It is above all those projects on the main stem of the Roanoke. There are other projects which could be developed as run-of-river power sites which are below the Philpott Reservoir which is now under construction.

Mr. MACK. How many potential dam sites are there below the Smith project which might bene-

fit by the more even run-off of water as a result of building this reservoir dam?

Colonel GEE. To go down the map which you have before you there, the Smith Mountain site is the uppermost site on the Roanoke River. Below you find the Leesville Dam site, the Taber Dam site, the Melrose, Whipping Creek, which is a tributary, Melrose is a main stem project, and Randolph is a main stem project. Then you reach Buggs Island, and the additional water impounded in Smith Mountain will have a beneficial effect upon the power production of Buggs Island, and that is figured as one of the benefits to be created by the building of Smith Mountain.

Mr. MACK. There are about five dams below the reservoir?

Colonel GEE. Yes, sir. It also will affect the Gaston site and the Roanoke Rapids site, which are still below, so that makes seven all together.

Mr. MACK. On these Buggs Island and Philpott Dams, is the Government installing electrical production at those two dams?

Colonel GEE. Yes, sir.

Mr. MACK. What will be the electricity capacity of these dams?

[147] Colonel GEE. Buggs Island will have an installed capacity of 204,000 and Philpott, 13,400 kilowatts—quite a small plant.

Mr. MACK. How much would this output be increased by the building of this reservoir?

Colonel GEE. I would have to get into the report to divide the benefits among the various projects, and I will be glad to put that in the record.

Mr. MACK. How much would the power potential of those two dams be increased by the impounding of this water and the even flow that would result from it?

Colonel GEE. We may be able to take it out of the report, sir. May I put that in the record, sir?

(The information requested is as follows:)

> Smith Mountain Reservoir would increase the dependable energy output from the ultimate power plants as developed at Gaston, Roanoke Rapids, and Buggs Island Dams by a total of 60,000,000 kilowatt hours annually. The value of this dependable energy is estimated at about $300,000 annually.

Mr. MACK. The 217,000 kilowatts these dams will produce will be turned over to the Interior Department to be marketed?

Colonel GEE. Yes, sir.

Mr. MACK. That is all, Mr. Chairman.

Mr. MARSALIS. Is that stream navigable at any point?

Colonel GEE. Only in its lower reaches.

Mr. MARSALIS. But it is navigable?

Colonel GEE. Yes, sir.

Mr. MARSALIS. That is all.

Mr. FALLON. No questions.

Mr. FORD. Colonel, you have testified that one of the private power companies has made application to the Federal Power Commission for permission to install a dam at Roanoke.

Colonel GEE. Yes, sir.

Mr. FORD. And you have indicated there is a possibility that another power company will make

a similar application at another authorized site.

Colonel GEE. Yes, sir.

Mr. FORD. Would those two applications not be made if there was not some possibility that the Smith Mountain Reservoir would be built?

Colonel GEE. Those applications are being filed principally because the Buggs Island Dam is under construction. They are both below Buggs Island and the greatest benefit is derived at those sites from the waters stored in the Buggs Island Reservoir. The benefits from Smith Mountain would be very small as compared with the Buggs Island benefit at the Roanoke Rapids site.

Mr. FORD. But if Smith Mountain Reservoir were constructed, it would aid and abet the power installations at the other six proposed sites.

Colonel GEE. That is correct, yes.

Mr. FORD. Most of the benefit from Smith Mountain would go to those rather than the other two where applications are filed before the Federal Power Commission.

Colonel GEE. Smith Mountain will have an effect upon those because they are downstream and on the main stem of the river.

[148] Mr. FORD. It was brought out earlier, Colonel, that steam construction costs versus hydroelectric costs were about the same at the present time. What is the relative cost of generating power; namely, steam versus hydroelectric? Which is cheaper?

Colonel GEE. The generation of hydroelectric power is cheaper than generation of steam power. What the figures are, I can't give you at the present time.

Mr. FORD. Generally, it would be cheaper?

Colonel GEE. Yes, sir.

Mr. FORD. That is all, Mr. Chairman.

Mr. DONDERO. Judge Moulder and also Congressman Jones raised an interesting question, and I want to refer to it because it does come in the category of the questions I was asking you; $22,000,000 cost of Smith Mountain and 41,000 kilowatt-hours, that roughly means that each kilowatt-hour will cost roughly over $500. I wish you would present to this committee some information on the question as to when it becomes economically unjustified to produce hydroelectric power. Where is the dividing line? I have said that my information is it is $300 per kilowatt-hour; if it goes beyond that, you can't justify it. I wish you might furnish this committee with some information on that.

Colonel GEE. Mr. Dondero, you mean per kilowatt of installed capacity?

Mr. DONDERO. That is it.

Colonel GEE. Not per kilowatt-hour.

Mr. DONDERO. Per kilowatt installed capacity. This would be over $500.

Colonel GEE. You are going about this in a very unfair way, for this reason——

Mr. DONDERO (interposing). I don't mean to be unfair.

Colonel GEE. You have taken the full estimated cost of the project and divided it by the installed capacity in this plant. The principal block of benefits to be derived from the building of this dam and the creation of this reservoir are those benefits to downstream plants, such as Buggs Island. So they must first be extracted from the project percentage-wise to determine what por-

tion of the total cost of this project is attributable directly to the capacity to generate power installed at the site.

Mr. DONDERO. Whatever that benefit is to the dams below, of course, is rather nebulous and hazy, so far as the testimony thus far shows.

Colonel GEE. It is sufficiently clear for the Federal Power Commission to evaluate it in dollars and cents and send the downstream companies a bill for it every year, sir.

Mr. DONDERO. One more question. Mr. Marsalis asked whether or not this stream was navigable. You said it was in the lower reaches.

Colonel GEE. Yes, sir.

Mr. DONDERO. However, navigation has no part in this project.

Colonel GEE. We are way above navigation, sir.

Mr. DONDERO. There is no area of navigation in this area.

Colonel GEE. No, sir.

Mr. DONDERO. Now, going back to the question that Congressman Jones asked, whether or not it was the policy of the engineers to construct dams with production of power and then sell that power to [149] private utilities—I think that was the substance of his question—I want to ask this question, Colonel: Hasn't it always been the policy of the Federal Government, at least up until recent years—and I don't think anybody denies but what this project and the Roanoke River Valley is almost entirely a power project; it puts the Federal Government in the power business—hasn't it always been the policy that where dams were constructed, either for navigation or flood control, and there was some power

available, produced at that dam, that beyond the amount of power that was needed to control the machinery of the dam, the rest was surplus, to be sold by the Army engineers or the Federal Government to whoever would buy it? Hasn't that been the policy up until recent years?

Colonel GEE. That is correct, except there is now a general understanding among the power marketing group in the Interior Department that Federal agencies, municipalities, REA districts, have a prior claim, shall we say, to the power as compared with a private utility company.

Mr. DONDERO. That is correct, and because of that provision in the Flood Control Act of 1944, the Federal Government is now in the power business in competition with our own citizens and private investors and private utilities to such an extent that private utilities must either retire from the business by selling out or else lose their investments. That is my objection to the whole policy of the Federal Government.

Colonel GEE. Well, an important step in just the opposite direction was taken, as I indicated yesterday, when the entire output of a major project in the State of Georgia has been contracted for by the Georgia Power Co. for marketing over its existing distribution system in the area which its company now serves.

Mr. DONDERO. That was one of the bright spots in the whole hearing, may I say to you, Colonel, to know that at least in one case the power company and private investors and private enterprise has been given the privilege of buying this power. It certainly was refreshing to hear that statement.

Contrary to that, let me say to you, however,

Colonel, that out in the Middle West this committee ran into exactly the opposite. Even agents of the Federal Government, not the engineers, have gone to municipalities and have said to them, "Do not make any further contracts with private utilities. We will sell power to you cheaper than they can do it," which means, of course, the destruction of private investment and private utilities. I am objecting to the Federal Government doing that.

Mr. PICKETT. Colonel, assuming that some presently existing utility company should appear at the Power Commission and now make an application to construct the Smith Mountain Dam, what would be the attitude of the Corps of Engineers on it?

Colonel GEE. The Corps of Engineers would be given an opportunity by the Federal Power Commission to review the plans of that utility company, and in reviewing those plans we would insist that the structure itself would do those things which we believe necessary to be done in developing the site fully; secondly, that their method of operation would not make conditions worse on the river. In other words, sudden fluctuations of water releases produce greater damage than [150] the heavy seasonal floods on some streams. There would have to be a set of regulations included in the permit issued to this company, which would restrict their operations so that they would not do damage to property owners downstream.

Mr. PICKETT. Then your position is not that of just resistance to the theory that private companies might build this structure if it conforms

to the benefits of the general over-all plan that you are already in the process of developing; is that right?

Colonel GEE. That is correct, sir.

Mr. PICKETT. Thank you.

The CHAIRMAN. Colonel, under the Flood Control Act of 1944, the general plan, including the 11 dams, was approved and the construction of only 2 of those dams—to wit, the Buggs Island and the Philpott—were authorized at an estimated cost of $36,140,000.

Colonel GEE. That is correct, sir.

The CHAIRMAN. Now, does that not mean—that language—that any reservoirs except the two named are authorized in the act of '44?

Colonel GEE. That language means that the general plan, including 11 reservoirs, has the approval of the Congress.

The CHAIRMAN. Does that mean—that language—that the 11 reservoirs are authorized?

Colonel GEE. No, sir.

The CHAIRMAN. I don't understand the language of the act. I want to get that clear, because this language is a little bit unusual as compared with other language, and I want to get the construction of your office.

Colonel GEE. It has been the interpretation of our office that those two projects are the only authorized projects in the Roanoke River Basin.

The CHAIRMAN. So what is the present estimated cost of those two projects?

Colonel GEE. About $90,000,000, sir.

The CHAIRMAN. And the estimated cost at the time of authorization was $36,140,000, in round numbers.

Colonel GEE. Yes, sir.

The CHAIRMAN. How much has been appropriated and what is the present status of that project—Buggs Island and Philpott—up to and including the present fiscal year '49?

Has Philpott been started? I am not going to delay the committee.

Colonel GEE. This is the first year of construction at Philpott, preliminary excavation of the foundation area and the construction of access roads is under way.

The CHAIRMAN. What is the total estimated amount appropriated?

Colonel GEE. $18,100,000 for Buggs Island and approximately $2,700,000 at Philpott.

The CHAIRMAN. In other words, less than one-fourth the cost of the Buggs Island and Philpott have been appropriated up to date.

Colonel GEE. That is correct, sir.

The CHAIRMAN. Now, then, this project was authorized under the report of the Chief of Engineers as a first unit.

Colonel GEE. Yes, sir.

The CHAIRMAN. And that report recommended the authorization as the first unit, and step by step, as reported by the district engineer in House Document 650, Seventy-eighth Congress, second session. [151] Now, please turn to that document and give us the next reservoir recommended in the order, step by step, improving that basin by the district engineer.

Colonel GEE. The district engineer's order of construction was Buggs Island——

The CHAIRMAN (interposing). What page, please, sir, of the document?

Colonel GEE. Page 70, sir.

The CHAIRMAN. All right, thank you, sir. I want that for the record. Now you are reading from page 70.

Colonel GEE. From a table on page 70, sir.

The CHAIRMAN. Where does he say that the first two on that page should be Buggs Island and Philpott and the next one Smith or any other reservoir? In other words, what I want is a categorical statement by the district engineer as to which of those two should be first constructed and which constructed in the third place, the fourth place and the fifth place.

Colonel GEE. The order recommended by the district engineer, as shown in the table on page 70, is first, Buggs Island; second, Gaston; third, Roanoke Rapids; fourth, Randolph; fifth, Clarksville; sixth, Smith Mountain; seventh, Leesville; eighth, Taber; ninth, Seneca; tenth, Melrose; eleventh, Schoolfield; twelfth, Philpott, No. 4; and thirteenth, Stuart.

The CHAIRMAN. Where is Philpott in that?

Colonel GEE. Philpott, No. 4; sir.

The CHAIRMAN. If you will pardon me now, the language of the recommendation of the Chief of Engineers and the district engineer, not regarding that other of sequence as they appear on that page, was that Buggs Island and Philpott be constructed first.

Colonel GEE. That is correct, sir.

The CHAIRMAN. Now where is there any language, in specific terms, recommending that any other reservoir should be constructed as the second unit, because if you follow that mere recital

there, why, you don't get Philpott as the first unit.

Colonel GEE. On page 7 of this report.

The CHAIRMAN. All right, that is what I want to get. Read me that language on page 7 for this report.

Colonel GEE. There appears a table at the bottom of page 7, which is continued on page 8, which shows the descriptive details of each of the projects.

The CHAIRMAN. What is the first reservoir in that table?

Colonel GEE. The first is Buggs Island.

The CHAIRMAN. The second?

Colonel GEE. The second is Gaston.

The CHAIRMAN. The third?

Colonel GEE. Roanoke Rapids.

The CHAIRMAN. The next one?

Colonel GEE. Fourth is Smith Mountain.

Mr. CHAIRMAN. Now, then, that is the way they appear there.

Colonel GEE. Yes, sir.

The CHAIRMAN. Have we any statement in this report by the district engineer as to the definite order of construction in language similar to the recommendation of the district engineer and the Chief of Engineers for combining Buggs Island and Philpott?

[152] Colonel GEE. Yes, sir. On page 10 in the report of the Board of Engineers for Rivers and Harbors, the Board recommends the improvement of the Roanoke Basin in accordance with the plan set forth in this document and recommends for initial construction the Buggs Island and Philpott Dams.

The CHAIRMAN. Well, you are reading from the report of the Board now. Where do they recommend as a second unit Smith Mountain?

Colonel GEE. There is no recommendation, sir, beyond the table which I cited on page 7, that Smith Mountain should be No. 4 in the list as recommended by the Board.

The CHAIRMAN. Well, is there any recommendation by the district engineer that it should be No. 2, which we are called upon to make it in this unit?

Colonel GEE. There is no recommendation from the district engineer other than it should be No. 4 in his list, sir.

The CHAIRMAN. All right, we have no recommendation from the Chief of Engineers in this report that Smith Mountain should be the No. 2 unit.

Colonel GEE. No, sir. However, you have our recommendation as of this morning, that in view of the fact that a private utility company is now seeking to build the Roanoke Rapids Dam, and we believe a similar application will be filed on the Gaston site, that it is our feeling the Federal Government should not attempt to compete and build these straight-power projects.

The CHAIRMAN. But the fact of the matter is there has been no modification of this report, and that is the statement that you make to the committee in the light of subsequent developments.

Colonel GEE. Yes, sir.

The CHAIRMAN. And it presents a very interesting question as to whether the Government is going to build a unit and then private power build a second and a third and the Government come

along and build a fourth. What is the justification for the Government to do that if those two individual units that come between are really to get a benefit that they wouldn't get if they were building those projects in the first instance?

Colonel GEE. Any benefit which they derive from the building of the multiple-purpose projects we have been discussing will have to be paid for on an annual basis by the private companies who build these projects.

The CHAIRMAN. Under what law?

Colonel GEE. Under section 10 (f) of the law which created the Federal Power Commission and charged them with the responsibility for protecting the Federal interests and the interests of licensed private organizations concerned in hydroelectric developments throughout the Nation.

The CHAIRMAN. Where have they ever paid for such benefits?

Colonel GEE. We can cite you several such projects, sir.

The CHAIRMAN. Just give me one recently, this year or last year.

Colonel GEE. They are negotiating now on the Roanoke Rapids site, which I mentioned, sir.

The CHAIRMAN. Excuse me, where they have actually paid for a benefit that has accrued.

Colonel GEE. I will furnish that information for the record, sir.

[153] The CHAIRMAN. You bring it to the attention of the committee, will you please?

Colonel GEE. Yes, sir.

The CHAIRMAN. Thank you very much.

(The information requested is as follows:)

Because of the complex nature of the problem, the Federal Power Commission renders its decision only after the plants have been in operation several years, so that a proper determination of the actual benefit of the downstream interest can be made. At this time, no opinions concerning Federal projects have been rendered, although several are under study. An example of the type of decision rendered is contained in the published findings in the matter of Southern California Edison Co., Ltd, and San Joaquin Light & Power Corp. Cases 67, 96, 120, in which the San Joaquin Light & Power Co., was ordered to pay a certain percentage of the costs for upstream developments made by the Southern California Edison Co. The decision rendered in 1939 was made retroactive to 1923, the amount payable for each year depending upon the benefits actually received in that year. A full account of the proceedings in this case is contained in Federal Power Commission Reports (vol. I, pp. 567–585 incl.).

Reference to Statutes and Reports on Reservoir Projects Under Control of the Department of the Army

PLANTS IN OPERATION

River or river basin	Plant	Ultimate capacity (kilowatts)	Average annual energy (million kilowatt-hours)	Statute [1]	Report [2]
Columbia	Bonneville	522,400	4,411	NIRA-1933	
				R & H 8/30/35	
Coosa	Allatoona	110,000	171	FC 8/18/41	
				FC 12/22/44	H. D. 674, 76c, 3s.
Cumberland	Dale Hollow	54,600	127	FC 6/28/38	
Do	Center Hill	136,200	351	FC 6/28/38	
				R & H 7/24/46	
Do	Wolf Creek	271,200	867	FC 6/28/38	
				R & H 7/24/46	
Missouri	Fort Peck	165,000	1,040	FC 6/28/38	H. D. 238, 73c, 2s.
Red	Denison	176,200	312	FC 6/28/38	H. D. 541, 75c, 3s.
Do	Narrows	25,500	29	FC 8/18/41	H. D. 837, 76c, 3s.
White	Norfolk	140,400	189	FC 6/28/38	
				FC 6/18/41	
Total 9 plants		1,601,500	7,497		

PLANTS UNDER CONSTRUCTION

Appalachicola	Jim Woodruff	30,000	226	R & H 7/24/46	
Arkansas	Tenkiller Ferry	34,000	102	R & H 7/24/46	
Do	Fort Gibson	67,500	170	FC 8/18/41	H. D. 107, 76c, 1s.
Brazos	Whitney	30,000	98	FC 8/18/41	H. D. 390, 76c, 1s.
				FC 12/22/44	
Chattahoochie	Buford	86,000	155	R & H 7/24/46	
Columbia	The Dalles	1,248,000	7,247	FC 5/17/50	HD 704, 75c, 3s.
				FC 3/2/45	
Do	Chief Joseph	1,285,600	9,006	R & H 7/24/46	
Do	McNary	986,000	6,810	R & H 3/2/45	
Do	Lookout Point	115,000	294	FC 5/17/50	HD 531, 81c, 2s.
Do	Albeni Falls	42,600	248	FC 5/17/50	SD 9, 81c, 1s.
Cumberland	Cheatham	36,000	160	P.L.396, 82C, 2s.	
Do	Old Hickory	100,000	420	R & H 6/24/46	
Missouri	Gavins Point	100,000	524	FC 12/22/44	HD 475, 78c, 2s.
Do	Fort Randall	320,000	1,858	FC 12/22/44	Do.
Do	Oahe	425,000	2,708	FC 12/22/44	Do.
Do	Garrison	400,000	2,354	FC 12/22/44	Do.
Neches	Dam B	2,935	23	R & H 3/2/45 (Power plant defined).	Do.

See footnotes at end of table.

PLANTS UNDER CONSTRUCTION—Continued

River or river basin	Plant	Ultimate capacity (kilowatts)	Average annual energy (million kilowatt-hours)	Statute [1]	Report [1]
Arkansas	Blakely Mountain	75,000	122	FC 12/22/44	HD 647, 78c, 2s.
Roanoke	Buggs Island	206,000	410	FC 12/22/44	HD 650, 78c, 2s.
Do	Philpott	14,000	25	FC 12/22/44	Do.
Santiam	Big Cliff	18,000	100	FC 6/28/38	Do.
Savannah	Clark Hill	282,000	698	FC 12/22/44	HD 657, 78c, 2s.
White	Bull Shoals	322,000	772	FC 8/18/41	HD 917, 76c, 3s.
Willamette	Detroit	100,000	342	FC 6/28/38	HD 544, 75c, 3s.
Do	Dexter	15,000	78	FC 5/17/50	Do.
Total 25 plants		6,340,635	34,987		

PLANTS FOR WHICH APPROPRIATIONS AUTHORIZED

Alabama	Howell Mill Shoals	280,000	569	R & H 3/2/45	
Do	Jones Bluff	68,000	348		
Do	Millers Ferry	76,000	416		
Arkansas	Ozark	24,000	176	R & H 7/24/46	
Do	Dardanelle	120,000	664		
Do	Eufaula	90,000	381		
Do	Short Mountain	72,000	371		
Do	Webbers Falls	28,000	167		
Do	Markham Ferry	72,000	160	FC 8/18/41	HD 107, 76c, 1s.
Do	Ozlogah	14,000	59	FC 6/26/38	
				R & H 7/24/46	
Do	Keystone	60,000	220	FC 5/17/50	SD 107, 81c, 1s.
Do	Pensacola	62,000	265	FC 8/18/41	HD 107, 76c, 1s.
Columbia	Libby	618,000	2,172	FC 5/17/50	
Do	Priest Rapids	1,219,000	7,803	FC 5/17/50	
Do	John Day	1,190,000	7,829	FC 5/17/50	
Cumberland	Celina	64,800	220	R & H 7/24/46	
Do	Stewarts Ferry	13,500	52	FC 6/28/38	
Do	Three Islands	18,000	54	FC 6/28/38	
Do	Carthage	92,000	310	R & H 6/24/46	
Guadalupe	Canyon	49,000	65	R & H 3/2/45	
James	Gathright	34,000	51	FC 7/24/40	
Kentucky	Jessamine Creek	13,900	73	FC 12/22/44	HD 504, 78c, 2s.
Do	Booneville	7,300	42	FC 12/22/44	
Kanawha	Bluestone	225,000	693		
Mississippi	Red Rock	17,200		FC 12/22/44	HD 651, 78c, 2s.
Missouri	Pomme de Terre	7,000	26		
Do	Richland	25,000	49		
Do	Big Bend	120,000	783	FC 12/22/44	
Neches	McGee Bend	28,800	111	R & H 3/2/45	
Do	Dam A	2,700	11	R & H 3/2/45	
Do	Rockland	13,500	62	R & H 3/2/45	

Reference to statutes and reports on reservoir projects under control of the Department of the Army—Continued

PLANTS FOR WHICH APPROPRIATIONS AUTHORIZED—Continued

River or river basin	Plant	Ultimate capacity (kilowatts)	Average annual energy (million kilowatt-hours)	Statute [1]	Report [2]
Ouachita	Degray	32,000	62	Pub. Law 516, 81c, 1s.	
Rappahannock	Salem Church	81,756	149	FC 7/24/46	
Sacramento	Table Mountain	54,000	287	FC 12/22/44	
Snake	Lower Granite	220,000	1,466	R & H 3/2/45	
Do	Little Goose	260,000	1,760	R & H 3/2/45	
Do	Lower Monumental	240,000	1,639	FC 3/2/45	
Do	Ice Harbor	260,000	1,748	R & H 3/2/45	
Savannah	Hartwell	180,000	463	FC 12/22/44	HD 657, 78c, 2s.
White	Table Rock	168,000	482	FC 8/18/41	
Willamette	Hills Creek	20,000	104	FC 5/17/50	HD 544, 75c, 3s.
Total 38 plants		6,241,450	33,362		

PLANTS FOR WHICH APPROPRIATIONS NOT YET AUTHORIZED

Alabama	6 dams (unnamed)		1,645	FC 3/2/45	HD 414, 77c, 1s.
Appalachicola	Upper Columbia	130,000	440	R & H 7/24/46	
Arkansas	Greers Ferry	96,000	191	FC 12/22/44	
Do	Antlers	18,300	51	do	
Do	Broken Bow	36,300	72	do	
Do	Pine Creek	18,400	29	do	
James	Pemberton	108,000	1,256	R & H 6/30/48	HD 207, 80c, 1s.
Do	12 St. James	21,000	896	do	Do.
Do	Belle Isle James	24,000	793	do	Do.
Do	Boulevard James	21,000	664	do	Do.
Do	Lyle James	10,000	108	do	Do.
Do	Maury North	36,000	161	do	Do.
Do	Hipes Craig	18,000	188	do	Do.
Do	Rock House James	12,000	262	do	Do.
Do	Balcony Falls James	16,000	346	do	Do.
Do	Joshua Falls James	16,000	428	do	Do.
Do	Bosher James	24,000	554	do	Do.
Lake Champlain	Wallingford	1,500	3	FC 6/22/36	HD 144, 72c, 1s.
Do	Tinmouth	3,000	7	do	Do.
Do	Taftsville	800	3	do	Do.
Do	E. Clarendon	3,400	15	do	Do.
Do	Ripton	4,000	18	do	Do.
Do	E. Middlebury	1,000	4	do	Do.
Do	Lemon Fair	1,000	2	do	Do.

See footnotes at end of table.

Reference to statutes and reports on reservoir projects under control of the Department of the Army—Continued

PLANTS FOR WHICH APPROPRIATIONS NOT YET AUTHORIZED—Con.

River or river basin	Plant	Ultimate capacity (kilowatts)	Average annual energy (million kilowatt-hours)	Statute [1]	Report [1]
Lake Champlain	New Haven Mills	2,300	5	FC 6/22/36	HD 144,720,1s.
Do	Huntington Mills	18,000	62	do	Do.
Ohio	Ohio River	1,341,320	3,130	do	HD 306, 74c, 1s.
		130,510	653	do	Do.
Do	Little Kanawha	49,690	131	do	Do.
Do	Kanawha	1,481,520	5,690	do	Do.
		60,675	340	do	Do.
Do	Big Sandy	113,467	255	do	Do.
Do	Scioto	37,835	76	do	Do.
Do	Licking	75,686	168	do	Do.
Do	Kentucky	158,970	263	do	Do.
		90,730	340	do	Do.
Do	Green	48,200	69	do	Do.
		25,400	113	do	Do.
Do	Wabash	240,700	473	do	Do.
Roanoke	Melrose	34,500	134	FC 12/22/44	HD 650, 78c, 2s.
Do	Schoolfield	24,000	87	do	Do.
Do	Randolph	24,500	87	do	Do.
Do	Gaston	54,000	328	do	Do.
Do	Roanoke Rapids	58,800	378	do	Do.
Do	Smith Mountain	33,000	88	do	Do.
Do	Leesville	16,000	52	do	Do.
Do	Taber	10,000	41	do	Do.
Do	Stuart	9,000	34	do	Do.
Savannah	Goat Island	99,400	277	do	HD 657, 78c, 2s.
Do	Middleton	42,800	115	do	Do.
Do	Chatooga	68,500	230	do	Do.
Do	Tallow Hill	43,130	113	do	Do.
Do	Anthony Shoals	22,400	66	do	Do.
Do	Newry Old Pickins	37,200	76	do	Do.
White	Wolf Bayou	104,000	636	FC 6/28/38 FC 6/18/41	
Do	Gilbert	30,000	78	do	
Do	Lone Rock	90,600	162	do	
Do	Blair Creek	60,000	126	do	
Do	Doniphan	60,000	140	do	
Willamette	Bock Canyon	21,000	162	FC 6/28/38	HD 544, 75c, 3s.
Do	Bear Creek	22,400	179	do	Do.
Do	Vida	16,800	136	do	Do.
Do	Leaburg [3]	7,300	60	do	Do.
Do	Dearborn	5,840	47	do	Do.
Do	Walterville [3]	7,200	58	do	Do.
Do	Haydon Bridge	12,800	103	do	Do.
Do	Niagara	16,800	136	do	Do.

See footnotes at end of table.

Reference to statutes and reports on reservoir projects under control of the Department of the Army—Continued

PLANTS FOR WHICH APPROPRIATIONS NOT YET AUTHORIZED—Con.

River or river basin	Plant	Ultimate capacity (kilowatts)	Average annual energy (million kilowatt-hours)	Statute [1]	Report [2]
Willamette	Mill City	18,400	149	FC 6/28/38	HD 544, 75c, 3s.
Do	Mehama	17,600	140	do	Do.
Total 74 plants		5,543,753	24,362		

[1] R&H means River and Harbor Act; FC means Flood Control Act; NIRA means National Industrial Recovery Act.

[2] HD 674, 76c, 3s means House Document 674, 76th Congress, 3d session.

[3] Additional generating units in existing plants.

[4] Dam completed for flood control; power features to be installed after additional flood control storage is provided elsewhere in the river basin.

A Problem in Logic

If A is inconsistent with B, and not-A is inconsistent with B, en B is non-existent.

Let A=projects authorized for Federal construction, not-A= ojects not authorized for Federal construction, and B=projects thin a Congressionally approved plan adopted for construction.

Then, the universe of discourse is resented by Figure 1.

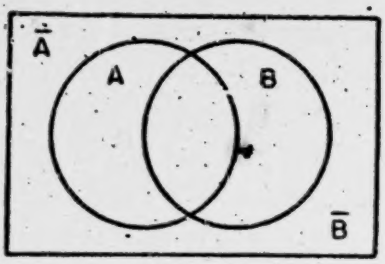

FIGURE 1.

is inconsistent with B is repre- ted by Figure 2.

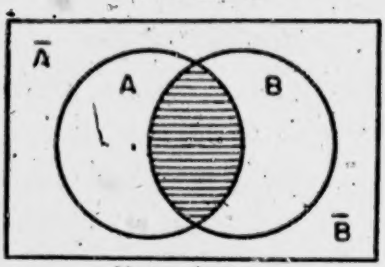

FIGURE 2.

is inconsistent with B is repre- ted by Figure 3.

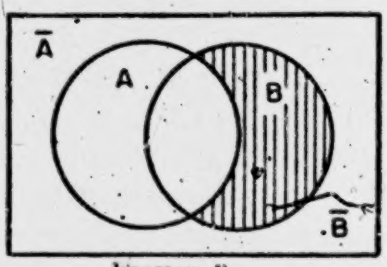

FIGURE 3.

oth A and $\bar{A}$ are inconsistent with s represented by Figure 4.

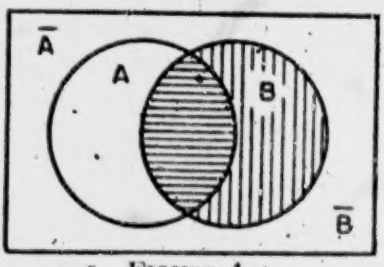

FIGURE 4.

herefore, B is non-existent.

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lgebraically, the same propositions may be represented as follows:

is inconsistent with B	$A \cdot B = 0$
ot-A is inconsistent with B	$\bar{A} \cdot B = 0$
dding the two,	$(A + \bar{A})B = 0$

Federal Power Commission Comments On Recommendations of the Army Engineers for Federal Development

A. Approval of Federal Developments as Recommended

1. In House Document No. 165, 76th Congress, 1st Session, the Commission concurred in the recommendation of the Corps of Engineers that Enfield Rapids Power development on the Connecticut River should be constructed as a Federal development as follows:

> The Commission concludes, on the basis of studies made by its engineering staff in which the value of power output was conservatively considered, that the power feature of Enfield Rapids project is thoroughly sound, and that in consummating the navigation improvement between Hartford and Holyoke, provision for the development of power at this site should unquestionably be made; and, in view of the potential value of such a power plant for National defense purposes in a highly industrialized region, and the importance of facilitating the 12-foot depth navigation improvement, the Commission is of the opinion that you would be justified in approving the project for construction by the United States, including both the power and navigation features.

2. In House Document No. 342, 76th Congress, 1st Session, the Commission concurred in the recommendation of the Corps of Engineers that:

> The immediate construction of the Fort Benning and River Junction locks and dams would not in any way interfere or be inconsistent with the interests of power development in the basins of these rivers, provided suitable and adequate arrangements are made for the development of such water power as may be available at each of the navigation dams after construction of the several proposed headwater reservoirs for stream flow regulation.

The Commission recommended as follows:

> No reason is seen why the Fort Benning and River Junction locks and dams, as parts of the general navigation-power project, should not be authorized and constructed in the immediate future.

3. In House Document No. 917, 76th Congress, 3rd Session, the Commission concurred in the recommendation of the Corps of Engineers that Table Rock and Bull Shoals Dams on the White River in Missouri and Arkansas should be constructed as Federal developments, as follows:

> The Commission concludes that multiple-purpose projects at the Table Rock and Bull Shoals sites on the White River in Missouri and Arkansas, respectively, are essential units in a plan to develop comprehensively the water resources of the White River Basins; * * *; That the power market available could absorb the output from the Bull Shoals project very soon after completion; that the growing power

market together with the need for additional flood control would soon justify the construction of the Table Rock project; that both projects are desirable and economically feasible; that their construction should be authorized. * * *

4. In House Document No. 475, 78th Congress, 2d Session, the Commission concurred in the recommendation of the Corps of Engineers that the Missouri Basin project should be constructed as a Federal development, as follows:

> The Commission appreciates the opportunity to comment on the reports of your Department on a comprehensive plan for the Missouri River Basin. We concur in the recommendation of our staff that the plan, for undertaking the development on a step-by-step basis with latitude for such modifications as to detail as changing conditions demonstrate to be desirable, be authorized. Comment with respect to particular projects and their best use must necessarily be reserved until such time as our cooperation in connection with further studies and definite project plans is called for.

5. In House Document No. 504, 78th Congress, 2nd Session, the Commission concurred in the recommendation of the Corps of Engineers and it also recommended that Jessamine Creek and Booneville Reservoirs have power features incorporated. The projects should be constructed as Federal developments as follows:

> The Commission has caused its staff to review the reports of your Department, especially those features which have to do with the use of the Jessamine Creek and

Booneville Reservoirs for the development of hydroelectric power. The staff concludes that both of these projects will be desirable units in a comprehensive development of the Kentucky River Basin for flood-control, power, and other purposes; that the dams, when built, should be constructed to create the gross storage capacities in the Jessamine Creek and Booneville projects of 1,135,000 and 485,000 acre-feet respectively as proposed by the district engineer; and that the development of power should be provided for in both projects.

The Commission understands that while, according to the report of the Board, the Jessamine Creek and Booneville projects are eligible for selection in the Ohio River system, existing authorization would not permit their construction to include power. In view of the reports of your Department and the studies by the Commission staff, the Commission believes that the authorization for these projects should be broadened so as to permit their construction as multiple-purpose projects to include power.

6. In House Document 513, 78th Congress, 2nd Session, the Commission concurred in the recommendation of the Corps of Engineers that a multiple-purpose reservoir project at the Isabella site on the Kern River in California should be constructed as a Federal development, as follows:

From the reports of your Department and from studies by the staff of the Commission, the Commission concludes that a multiple-purpose reservoir project at the Isabella site on the Kern River in California is a desirable element in a plan to develop comprehensively the water re-

sources of the Kern River; that its construction should be authorized; that further study should be directed to methods of reservoir operation provisions for power at the site of the project, and the relation of the project to the Borel power development and to other power plants downstream; and that the enabling legislation should contain a provision with respect to the determination and collection of benefits to downstream power plants substantially as suggested in this letter.

7. In House Document No. 624, 78th Congress, 2nd Session, the Commission concurred in the recommendation of the Corps of Engineers that the improvements of the Blackstone River for flood control and the West Hill Reservoir on the Blackstone River should be constructed as a Federal development as follows:

On the basis of the reports of your Department and of studies by the Commission staff, the Commission concludes that the recommendations of the Board for the improvement of the Blackstone River for flood control should be adopted; that the benefits that would accrue from the addition of conservation storage at the West Hill Reservoir would well justify its construction by the Federal Government initially as a multiple-purpose project to include conservation storage; and that if these improvements are authorized by the Congress in accord with the suggestion above the enabling legislation should contain a provision in substance as follows:

8. In House Document No. 625, 78th Congress, 2nd Session, the Commission concurred in the recommendation of the Corps of Engineers that

a flood-control dam at the Alamo site on the Bill Williams River should be constructed as a Federal development as follows:

> From a review of the reports from your Department and consideration of the results of the studies by the Commission staff, the Commission concurs with the Board of Engineers for Rivers and Harbors in its recommendations that the project proposed at the Alamo site on the Bill Williams River should be constructed substantially as outlined in the report of the district engineer, for use initially for flood control and the prevention of siltation below the dam, with provisions for its ultimate use to meet the needs also for conservation storage for irrigation and incidental power development.

9. In House Document No. 119, 80th Congress, 1st Session, the Commission concurred in the recommendation of the Corps of Engineers that the Rappahannock River project should be a Federal development as follows:

> There is in this case a unanimity of opinion among your reporting officers, the Board, and the Commission staff that the Fredericksburg development is necessary for the efficient use of the water resources of the Rappahannock River, and that it is a highly economic part of the improvement plan. The two developments would be so closely related hydraulically and electrically that they should be under single control and operation. The studies by the Commission staff show that there will be a need for the power which could be produced at both projects. In view of the above the Commission believes that the Salem Church and Fredericksburg developments are

highly desirable and that they should be considered as integral units of one project.

The Commission attached a memorandum from its staff in which the following appears:

> The inclusion of projects like the power development at Fredericksburg is not unlike other similar situations. For example, Roanoke River recommendations include a redevelopment of Roanoke Rapids in order to make use of the regulation from the Buggs Island project. As in the case of the Embrey plant, the existing Roanoke Rapids plant is not under license, although there is this difference that it would be maintained in operation. The Neches River recommendations include a dam "A" solely in the interest of power to make use of the regulation from the proposed Rockland project.
>
> It is recommended that the Commission concur with the district and division engineers in their recommendations for the construction of the Salem Church and Fredericksburg project.

10. In House Document No. 300, 80th Congress, 1st Session, the Commission concurred in the recommendation of the Corps of Engineers that projects, including hydroelectric developments, proposed on the Appalachicola, Chattahoochee, and Flint Rivers, Georgia and Florida, should be constructed as Federal developments, as follows:

> The Commission staff believes, as a result of its own studies and cooperation with your engineers and its review of the report, that the above recommended plan, with modifications, constitutes a desirable first stage of the comprehensive development of

the water resources of the Appalachicola Basin and should be adopted.

* * *

The completeness with which you have considered the suggestions of the Commission and its staff, resulting in the general accord which has been reached as to the presently proposed development of this river system, is greatly appreciated. The Commission expects to have its staff continue to cooperate with your engineers in the further investigations of these projects during the preparation of the definite project reports and to assist in arriving at decisions with respect to installations and other power details.

11. In House Document No. 135, 81st Congress, 1st Session, the Commission concurred in the recommendations of the Corps of Engineers that a plan for increased flood control in the Santa Ana River Basin should be constructed as a Federal development without power, as follows:

The Commission staff has reviewed the reports and concludes that there is no opportunity for the initial or future generation of hydroelectric power in connection with the project plan, and that the proposed improvements would not interfere in any way with any possible future power developments, which would undoubtedly be minor in character and probably would be situated upstream from the levee and channel work. Copy of the staff memorandum discussing the reports is transmitted herewith for the information of your Department.

Based on its consideration of the proposed report of your Department and

studies by its own staff, the Commission concludes that the proposed plan of improvement does not adversely affect power values, and that there is no opportunity for the development of power in connection therewith.

12. In House Document No. 185, 81st Congress, 1st Session, in connection with the recommendation of the Corps of Engineers that the comprehensive plan for water resource development (without power) should be constructed as a Federal project on the Red River, Minnesota, South Dakota, and North Dakota, the Commission states as follows:

> In its review of the power possibilities of the project, the Commission staff notes that the entire 13,100 acre-feet of active storage capacity would be reserved for flood control. In the proposed plan of operation the reservoir would be partially drawn down after spring floods and be refilled as much as possible before winter, so that some storage would presumably be on hand when necessary for augmentation of low stream flows. Estimates by the staff show that the amount of available power would be small, and that the annual costs of power development would exceed the annual benefits. A memorandum report by the staff on the Orwell project is enclosed for the information of your Department.
>
> Based on its consideration of the report of your Department and the studies by its staff, the Commission concludes that the development of the small amount of power available at the proposed Orwell project would not be economically justified.

13. In House Document No. 530, 81st Congress, 2nd Session, the Commission in commenting about the plan of the Corps of Engineers to construct Federal projects (without power) on the Meadow Valley Wash and Lower Muddy River, Nevada, stated as follows:

> The Commission staff has reviewed the reports of your Department and has considered the possibility of developing hydroelectric power in connection with the project plans. On the basis of its studies the staff reports that the generation of hydroelectric power in connection with either the Pine Canyon or Mathews Canyon project would not be feasible, due to the meager and erratic character of stream flow at the two dam sites, and the prohibitive incremental cost of enlarging the projects to provide power head and storage regulation—which would further reduce stream flow by excessive evaporation from the power pools—and of installing power generating facilities.

B. APPROVAL OF FEDERAL DEVELOPMENTS RECOMMENDED WITH MODIFICATIONS

1. In House Document 837, 76th Congress, 3rd Session, the Commission concurred, with some modification of the plan, in the recommendation of the Corps of Engineers that Narrows on the Little Missouri River should be constructed as a Federal development, as follows:

> The Commission concludes that a dual-purpose, flood-control and power project at the Narrows site on the Little Missouri River is an important and desirable unit in a plan to develop comprehensively the water resources of that river; that the Nar-

rows project is economically feasible; and that the power which could be produced could be absorbed readily into the loads of existing electric utilities operating in the region of the project.

2. In House Document 957, 76th Congress, 3rd Session, the Commission concurred in the recommendations of the Corps of Engineers that Anderson Ranch project on South Fork Boise River should be constructed as a Federal project, as follows:

> * * * the Commission concludes that a multiple-purpose reservoir project at the Anderson Ranch site, operated in the combined interests of flood control, irrigation, and the development of hydroelectric power, would be a desirable part of a comprehensive plan to develop the water resources of the Boise River Basin; that an initial installed capacity of 20,000 kilowatts would be warranted; and that further consideration should be given to the question as to what provision should be made in the initial construction for the possible future installation of additional power capacity.

3. In House Document No. 559, 78th Congress, 2nd Session, the Commission concurred in the recommendation of the Corps of Engineers that the Terminus and Success Reservoirs on the Kaweah and Tule Rivers, California, should be constructed as Federal developments, with modifications as follows:

> From information furnished by your department and from studies by the Commission's staff, the Commission concludes that multiple-purpose projects at the Terminus and Success sites would be desirable

units in the development of the water resources of the San Joaquin Valley; that the Success project should be authorized substantially as recommended by the Board of Engineers for Rivers and Harbors; and that the authorization for the Terminus project should provide for its construction to include the development of hydroelectric power.

4. In House Document No. 647, 78th Congress, 2nd Session, the Commission concurred in the recommendation of the Corps of Engineers that Blakely Mountain project on the Ouachita River, Ark., should be constructed as a Federal development as follows:

> Based upon its previous consideration of a project at the Blakely Mountain site in connection with its licensing authority under the Federal Power Act, and upon consideration of the reports of your Department and the studies by the Commission staff, the Commission concurs in the conclusion and recommendation of the Board that the construction by the Federal Government of the Blakely Mountain project for flood control, the production of power, and other beneficial purposes, should be authorized substantially in accordance with the plans of the division engineer; subject to such modification as may prove desirable after further detailed consideration of the advisability of constructing the dam to a height approximating that outlined by the Commission staff.

5. In House Document No. 649, 78th Congress, 2nd Session, the Commission concurred in the recommendation of the Corps of Engineers that the conservation of the water resources of the

Sacramento River Valley, Calif., should be accomplished as a Federal development as follows:

> The Commission agrees with the Board that there is a need for additional flood control, power, and the conservation of additional water for irrigation and other purposes in the Sacramento River Valley, and believes that the general plan of development proposed by the district engineer and approved by the Board constitutes an adequate framework upon which the final plans for the comprehensive utilization of the water resources of the valley for these and other purposes, including salinity control, can be made. The Commission also believes that the works proposed by the Board of Engineers for Rivers and Harbors for initial construction, including reservoir project at the Black Butte and Table Mountain sites, are essential to such a comprehensive development; that two-stage construction of the Table Mountain Dam is desirable to permit further study of and determinations with respect to the feasibility of constructing a high dam at the site; and that the initial construction of the low-dam Table Mountain project should include power with an initial installation of at least 36,000 kilowatts.

6. In House Document No. 650, 78th Congress, 2nd Session, the Commission concurred in the recommendation of the Corps of Engineers that the Roanoke River Basin projects should be constructed as Federal developments as follows:

> Based upon the consideration given hereinbefore, and upon careful review of the reports of your Department, the Commission concurs in the conclusion of the Board of Engineers for Rivers and Harbors that

the comprehensive development of the Roanoke River Basin, in general accordance with the plans prepared therefor by the district engineer consisting of 11 dam and reservoir projects with power, is desirable and that the Buggs Island and Philpott projects would constitute a desirable initial step in the development of the Roanoke River Basin. The Commission believes that the power which could be produced at the Buggs Island and Philpott projects could be absorbed and profitably utilized in the postwar period within a reasonably short time following their construction and that plans, therefore, for these two projects should be prepared with the view to their construction in the early postwar period.

7. In House Document 651, 78th Congress, 2nd Session, the Commission concurred in the recommendation of the Corps of Engineers that the Red Rock Reservoir on the Des Moines River, Iowa, should be constructed as a Federal development, but with power, as follows:

> The Commission understands that while, according to the report of the Board, the authority of your Department will permit the selection of Red Rock Reservoir for construction in lieu of the Howell Reservoir, this authority would not permit the construction of the project to include power without additional authorization from the Congress. In view of the fact that your reporting officers and the Board are of the opinion that the Red Rock project should be constructed for multiple purposes which will include power, and the Commission concurs in this view, it is suggested that your Department take such steps as you deem necessary and appropriate to broaden

your authority so as to permit the construction, at such time as funds are made available, of the Red Rock Reservoir as a multiple-purpose project.

8. In House Document No. 652, 78th Congress, 2nd Session, the Commission concurred in the recommendation of the Corps of Engineers that the comprehensive development of the Yadkin-Pee Dee River Basin in North Carolina and South Carolina, should be constructed as a Federal development as follows:

> Based upon a review of the reports of your Department, and from studies by the Commission staff, the Commission concludes that the comprehensive development of the Yadkin-Pee Dee River Basin, in general accordance with the plans of your Department, for flood control, power, and other beneficial uses, including benefits to navigation, is desirable; that the modifications in the plan of the Board so as to retain the Styers project in the comprehensive improvement, generally as outlined hereinbefore, are desirable; that initial installation at these projects should be on the basis of operation at load factors substantially higher than those proposed in the reports of your Department; and that the Wilkesboro project is a desirable unit in the plan and would constitute a desirable first step in the basin development if undertaken on the basis suggested by the Commission staff.

* * *

9. In House Document No. 657, 78th Congress, 2nd Session, the Commission concurred in the recommendation of the Corps of Engineers that the comprehensive plan for the development of

the Savannah River should be constructed as a Federal development as follows:

> The Commission has given careful consideration to the reports of your Department and to the studies and views of the Commission staff and concurs in the recommendations of the Board that the 11-project plan for the comprehensive development of the Savannah river for flood control, navigation, hydroelectric power, and other beneficial uses, as proposed by the district engineer with certain modifications, and the inclusion of transmission facilities, is desirable and should be authorized now and undertaken on a step-by-step basis. The Commission agrees with the Board that the Clark Hill project would constitute a desirable initial step in the development of the Savannah River, the initial installation to consist of about 120,000 kilowatts and provisions to be made for an ultimate installation of not less than 200,000 kilowatts.

10. In House Document No. 622, 79th Congress, 2nd Session, the Commission concurred in the recommendation of the Corps of Engineers that the comprehensive plan for the development of the Potomac River and tributaries, Maryland, Virginia, West Virginia and Pennsylvania should be constructed as a Federal development as follows:

* * *

> Based on the staff studies and upon review of the reports of your Department, the Commission concludes that the plan of the district and division engineers for the comprehensive development of the Potomac River basin, should serve as a

guide for the design of any projects in the basin and as a basis for the selection and authorization of projects. When it shall be determined to be in the public interest to proceed with the development of this basin, the Riverbend project, constructed as proposed by the district engineer and operated substantially in accordance with the suggestions of the Commission staff, would constitute a desirable initial step.

11. In House Document No. 758, 79th Congress, 2nd Session, the Commission concurred in the recommendation of the Corps of Engineers that plan of development of the Arkansas River and tributaries, subject to modifications, should be adopted for construction as a Federal development, as follows:

> "There can be no question of the need for adequate control and conservation of the water resources of the Arkansas River Basin for all of their beneficial purposes. * * * periods of drought adversely affecting water supplies, navigation, and power also occur frequently pointing to the need for additional conservation storage. The modifications suggested by the Commission staff would answer in large part the need for the more adequate control of this river and, at the same time, make possible the development of a substantially larger amount of relatively high load-factor power that studies show would, under wise programming, be marketable in the region.
>
> The Commission concludes, therefore, upon the basis of the reports of your Department and the studies by the Commission's staff, that the multiple-purpose improvement of the Arkansas River Basin

as recommended in the report of the Chief of Engineers, with modifications is desirable and in the public interest. * * *

12. In House Document No. 197, 80th Congress, 1st Session, the Commission concurred in the recommendation of the Corps of Engineers that the Wabash River and tributaries should be constructed as a Federal development, as follows:

> Presented in the report of the district engineer is a multiple-purpose plan, designated plan II, which would provide for the construction of the now authorized Wolf creek, Spencer, Cagles Mill, and Shoals Reservoirs, with modifications, and a reservoir at the Clinton site. These five reservoirs would have an aggregate of 7,014,000 acre-feet of flood-control storage capable of controlling the maximum flood of record. This plan would cost $122,400,000 with total annual charges estimated at $5,805,000. The total flood-control benefits were estimated at $5,732,000 including downstream benefits to the Ohio and Mississippi Rivers. Other incidental benefits were estimated at $361,000 per year. This plan was found by the district engineer to provide the greatest benefits of any of the plans studied. The district engineer also found that the development of 18,000 kilowatts of hydroelectric power at the Spencer, Shoals, and Clinton Reservoirs would be justified.
>
> The Commission staff believes that plan II included in the report of the district engineer has considerable merit when considered as a component part of the over-all development of the Ohio and Mississippi River Basins. Certain modifications in the plan have been suggested by the staff in order to provide improvement of low river

flows, lakes suitable for recreational use, and a substantial amount of hydroelectric power with an estimated total installation of about 400,000 kilowatts. The staff reports that the improvement as modified would be adaptable to navigation on the Wabash River if it should be found desirable in the future.

13. In House Document No. 264, 80th Congress, 1st Session, the Commission comments about the recommendation of the Army Engineers with reference to the Big Sandy River Basin, W. Va. and Ky., were as follows:

> The Commission concludes, from a consideration of the reports of your Department and its own staff studies, that the development of power in conjunction with the construction of the proposed locks and dams would not be practicable; that, except for the Pound-Towers project, the development of power at other possible reservoir projects is not feasible at this time; that storage for stream-flow regulation in the interest of power development at the Pound-Towers project would result in substantially lesser investment and annual costs for pumping for lockages and leakage; that the studies of its staff indicate the feasibility of its plan for the Pound-Towers flood-control and power development; that, considering the improbability of the early construction of the three named Federal power projects which might be considered as competitive to Pound-Towers there is every likelihood that a market would exist for this power; and that for the reasons stated, your Department should give further consideration to the inclusion of the Pound-Towers project within the

scope of your recommendations for improvements in the Big Sandy River Basin.

14. In House Document No. 669, 80th Congress, 2nd Session, The Commission concurred in the recommendation of the Corps of Engineers that the Chatfield project on the South Platte River, Colo., should be constructed as a Federal development as follows:

* * *

> Based on its consideration of the reports of your Department and the studies by the Commission staff, the Commission concludes that the development of power at the Chatfield project would not be economically justified under present conditions. Since project plans now under consideration by the Bureau of Reclamation may in the future increase the rate of flow in the South Platte River, the Commission believes that the future power potentialities should be preserved by providing sufficient latitude in the authorization of the Chatfield project to permit modifications therein which may prove to be desirable in the interest of the comprehensive multiple-purpose use of the project.

15. In House Document No. 243, 81st Congress, 1st Session, the Commission concurred in the recommendation of the Corps of Engineers that projects on the Rio Grande River and tributaries, New Mexico, should be constructed as Federal developments as follows:

* * *

> Based on the studies of its own staff and its consideration of the reports of your Department, the Commission concludes that the adoption of the comprehensive plan for

the development of the Rio Grande Basin in New Mexico and the construction of the recommended projects would be in the public interest. The planned provisions for the installation of generating facilities at the Chiflo and Chamita projects appear to be adequate. In view of the need for additional power in the area, the Commission believes that the authorization of the projects should be made sufficiently broad to provide for the installation of power facilities whenever experience in reservoir operation demonstrates the practicability and feasibility of power development and as the market for the project power develops.

16. In House Document No. 271, 81st Congress, 1st Session, the Commission concurred in the recommendation of the Corps of Engineers that projects on the Green and Duwamish Rivers, Washington, should be constructed as Federal developments as follows:

* * *

Based on its consideration of the reports of your Department and studies by its own staff, the Commission concludes that there are possibilities for the economic development of hydroelectric power in connection with Eagle Gorge Reservoir project; and further that should the project be authorized, the feasibility of increasing reservoir capacity for power purposes and including other provisions in the project for the future development of power should be investigated at the time the construction plans are being prepared.

17. In House Document No. 535, 81st Congress, 2nd Session, the Commission concurred in the recommendations of the Corps of Engineers that

the projects on the Brazos River and tributaries, Texas, should be constructed as a Federal development as follows:

* * * *

> Based on its consideration of the reports of your Department and studies by its own staff, the Commission concludes that the proposed plan of improvement for the Brazos River basin provides a desirable solution to the major problems of flood control, water supply, and allied water uses. The Commission concurs in the plans for providing power facilities at the authorized Whitney and Belton projects, and believes that the desirability of making provisions at the six recommended reservoir projects for possible future power development should be investigated at the definite project stage. The Commission is also of the opinion that the desirability of adapting the Waco project to a future pumped storage development should be thoroughly explored at the definite project stage.

18. In House Document No. 549, 81st Congress, 2nd Session, in connection with the proposed projects to be constructed as Federal developments on the Osage River and tributaries, Missouri and Kansas, the Commission stated as follows:

* * * *

> Based on its consideration of the reports of your Department and studies by its own staff, the Commission concludes that the proposed plans of improvement for the Osage River and tributaries would not preclude any future practicable and economic power development additional to that included in these plans. The Commission

concurs in the plans for providing power facilities at the Stockton and Pomme de Terre projects, and believes that the proper installation can be determined at the definite project stage. The Commission also believes that the facilities that should be included in the Kasinger Bluff project for possible future power development should be investigated at the definite project stage.

19. In House Document No. 561, 81st Congress, 2nd Session, in connection with the recommendation of the Corps of Engineers that the Rathbun Reservoir on the Chariton River, Iowa and Missouri, to be constructed as a Federal development, the Commission stated as follows:

> Based upon its review of the reports of your Department and upon studies by its own staff the Commission concludes that the development of power at the Rathbun Reservoir would not be warranted at the present time. If this project becomes authorized, plans should be reviewed prior to construction to determine the desirability of installing penstocks or other facilities for the future development of power.

20. In House Document No. 585, 81st Congress, 2nd Session, the Commission concurred in the recommendations of the Corps of Engineers that projects as proposed on the Russian River, Calif., should be constructed as Federal developments as follows:

* * *

> Based on its consideration of the reports of your Department and studies by its own staff, the Commission concludes that the generation of hydroelectric power in connection with the proposed Coyote Valley

Reservoir appears to be economically justified under both initial and ultimate stages of its development. However, the Commission believes that before decision is made with respect to the ultimate generating capacity to be provided for in the initial construction of Coyote Valley Dam, an evaluation should be made of the probable ultimate demand for additional water supply in the areas southerly of the Russian River Basin, and the relation thereto, and to future power, of possible future increases in diversion of water from the Eel River Basin into the Russian River Basin. If the improvements are authorized as proposed in your report studies can be undertaken of these possibilities at the stage of definite project report preparation in order to determine what facilities should be provided for future power at Coyote Valley Reservoir.

21. In House Document No. 642, 81st Congress, 2nd Session, the Commission stated in connection with the proposed development of the Kansas River and tributaries, Colorado, Nebraska, and Kansas as follows:

The staff of the Commission, which has cooperated with the district engineer in studies of the Kansas River Basin, has reviewed the reports of your Department. The staff advises that the development of power at the Milford Reservoir is infeasible if the reservoir is operated as now proposed without conservation storage, and that the small amount of power that could be produced at the Perry Reservoir does not appear justified under present conditions. The Tuttle Creek Reservoir offers the best possibilities of the three reservoirs

for the development of power. The power at this project, under favorable conditions of reservoir operation, would amount to 20,000 kilowatts, with generation on the average of about 55,000,000 kilowatt-hours annually. Power development at Tuttle Creek does not, however, appear justified under present plans for the operation of the project.

Since it may be possible in the future to release water from the Perry and Tuttle Creek Reservoirs under plans of operation that would be more favorable to power than is now proposed, the Commission believes that the power values at these sites should be protected. These power values would be protected either by the incorporation in the initial construction of provisions for future power or by the ability, as stated in the district engineer's report, to construct power tunnels through abutments in the future. The question of which of these measures is the more desirable should be examined further at the time construction plans are prepared.

Copies of the staff report on its consideration of the review report of your Department are enclosed for your information. In addition to discussing the improvements proposed in the report the staff also describes briefly possibilities for development of the Kansas River at Topeka and below. While these possibilities for power appear to be of the magnitude of about 100,000 kilowatts, the staff notes that nothing in the present or proposed plans for the Kansas River would prevent the lower river development if it should later be found desirable and feasible.

22. In Senate Document No. 9, 81st Congress, 1st Session, the Commission concurred in the recommendation of the Corps of Engineers that the improvements at Albeni Falls on Pend Oreille River, Idaho should be constructed as a Federal development as follows:

* * *

> Based on its consideration of the report of your Department and studies by its own staff, the Commission concludes that the Albeni Falls project is a desirable project which would contribute substantially, by the regulation of stream flow, to the regional supply of hydroelectric power. In view of the urgent need for additional power in the Pacific Northwest, the Commission believes that the Albeni Falls project should be authorized for construction, with such modifications of the plans as in the discretion of the Secretary of the Army and the Chief of Engineers may be advisable.

23. In Senate Document No. 107, 81st Congress, 1st Session, the Commission concurred in the recommendation of the Corps of Engineers that the Keystone project on the Arkansas River, Arkansas, should be constructed as a Federal development as follows:

* * *

> Based upon a review of the reports of your Department and upon studies by its own staff, the Commission concurs in your recommendation for the construction of the Keystone Dam and Reservoir, with hydroelectric power development at the site. The Commission believes, however, that the plans for the project should include provisions for an ultimate installation of about 60,000 kilowatts in order

more fully to utilize the power potentialities of the project.

24. In Senate Document No. 117, 81st Congress, 1st Session, the Commission concurred in the recommendation that the Ouachita River and tributaries, Arkansas and Louisiana should be constructed as Federal developments as follows:

* * *

> Based on its consideration of the reports of your Department and studies by its own staff, the Commission concludes that the recommended improvements on the Ouachita River and tributaries constitute a desirable step in the comprehensive development of the water resources of the basin. The Commission believes, however, that the authorization of these improvements should be drawn so as to permit such modification of the plans along the lines considered by the staff for the Alabama Landing development, if found by further study to be feasible and desirable. The Commission concurs in the plans for power development at the DeGray project, with the installation possibly increased to about 35,000 kilowatts.

C. APPROVAL OF PLANS WITH RECOMMENDATIONS FOR FURTHER STUDY

1. In House Document No. 961, 76th Congress, 3rd Session, the Commission concurred in the recommendation of the Corps of Engineers that the Post Dam and Reservoir project on the Crooked River, Oregon, should be constructed by the Bureau of Reclamation as a Federal development with its primary use for irrigation and it should be so operated as to provide the maximum degree of flood

protection compatible with its primary use for irrigation. The Commission concurred in the recommendation as follows:

> * * * the Commission concludes that the small amount of power that could be developed at the Post Dam and Reservoir project, to be operated primarily in the interest of irrigation, would be seasonal in character; that in general, such seasonal power as could be generated at reservoirs operated principally for irrigation in this basin would have a value in connection with other power plants in the region; and that, prior to the construction of the proposed Post Dam and Reservoir project, further consideration should be given to the relation of the available power values to the power supply of the entire region.

2. In House Document No. 615, 78th Congress, 2nd Session, the Commission concurred in the recommendation of the Corps of Engineers that the Mount Morris project or the Portage project in lieu thereof should be constructed as a Federal development as follows:

> The Commission, based upon additional studies by its staff and upon the results of conferences with representatives of your Department, believes that it would be desirable to proceed with flood control in the Genesee River Basin; that initial construction for flood control need not await the adoption of a definite plan for the comprehensive development of the basin; that the Mount Morris and Portage projects, if constructed as described in the foregoing and with provisions for future power,

would be essential units in the future comprehensive development of the basin; that consideration should be given to the construction initially of the Portage project in lieu of Mount Morris in order to secure a greater degree of flood control with accompanying conservation benefits, as described above; and that the authorization for flood control in the Genesee River Basin should permit the selection of the Portage project for initial construction in lieu of Mount Morris.

The Commission will be pleased to have its staff continue to consult with and cooperate with representatives of your Department in determining the details of these projects at the time that authorization has been secured and definite project plans are in preparation.

3. In House Document No. 765, 78th Congress, 2nd Session, the Commission concurred in the recommendation of the Corps of Engineers that the Barren No. 2 project on the Barren River, Kentucky and Tennessee, should be constructed as a Federal development, as follows:

* * *

Based upon the reports of your Department and upon studies by the Commission staff, the Commission believes that the Barren No. 2 project should, when constructed, be built for multiple-purpose use including power and, under this circumstance, would be a desirable unit in the multiple-purpose development of the basin. The Commission believes, therefore, that the present authorization of the project for flood control should be broadened to permit its construction and use substantially as proposed in the reports under consideration.

A. In House Document No. 587, 79th Congress, 2nd Session, the Commission concurred in the recommendation of the Corps of Engineers that the improvement of the Lehigh River, Pa., should be constructed as a Federal development, and the Commission recommends that hydroelectric power be developed as follows:

> The Commission staff has studied the Lehigh River in the vicinity of the proposed Bear Creek Reservoir extensively over the past several years and, during the past 2 years, in cooperation with your district and division engineers in the consideration of the potentialities for the development of power in connection with improvements on this river.
>
> The report of the district engineer covers only very briefly the possibilities for the development of power and the studies thereon which were made in collaboration with the Commission staff. The apparent attractiveness of the plan of development studied and the magnitude of the power which could be produced warrant a brief description here of the plan which was developed by the staff.
>
> The district engineer reports that power could not be generated economically at the Bear Creek Dam and that provision for penstocks is not necessary. The Commission staff concurs in this conclusion and also with that of the district engineer that the Bear Creek project as proposed could be incorporated into the plan described for hydroelectric development of the Lehigh River.
>
> The Commission agrees with these conclusions and recommends for your further consideration at such time as may be ap-

propriate the plan suggested by its staff for hydroelectric development of the Lehigh River.

5. In House Document No. 207, 80th Congress, 1st Session, the Commission concurred in the recommendation that the James River Basin project should be a Federal development as follows:

* * *

Based upon the staff studies and upon review of the reports of your Department, the Commission concludes that the multiple-purpose development of the Jackson River is a desirable and feasible initial step in the comprehensive development of the James River in the interest of flood control, water supply, pollution abatement, recreation, and power, subject to such modification in the survey plan for the Falling Spring reregulation reservoir, along the lines suggested by the staff, as may be advisable. The Commission also concludes that ample market should be available to absorb the output from the project shortly after its completion.

The Commission believes that considerable further studies are required before the plan proposed by the district engineer for the development of the basin is adopted as a comprehensive plan. These additional studies should include the possibilities for extension of the plan to secure a more complete utilization of the water resources of the basin. As pointed out by the staff, the possibilities for further control of the river by reservoirs should be explored; also, the possibilities for a greater utilization of the very considerable head available on the river for the development of power.

6. In House Document No. 586, 81st Congress, 2nd Session, in connection with the recommendation of the Corps of Engineers concerning the proposed Federally-constructed developments on the Humboldt River and tributaries, Nevada, the Commission stated as follows:

> The Commission staff has reviewed the reports of your Department and has considered the possibility of developing hydroelectric power in connection with the project plans and under the plan of reservoir operation presented in the reports. On the basis of its studies, the staff reports that provision for the generation of hydroelectric power in connection with either of the three reservoirs would not be economically justified. The staff advises, however, that if the reservoirs are authorized and an agreement with respect to the method of their operation is entered into among local interests, as recommended in your report, the power potentialities of the proposed reservoirs should be reinvestigated in the light of such agreement in order to determine more definitely if provisions for future power would be warranted. The staff further advises that the improvements recommended in the report would not adversely affect any present or potential water-power developments in the basin.
>
> Based on its consideration of the report of your Department and studies by its own staff, the Commission concludes that provision for the generation of hydroelectric power in connection with the project plan does not now appear to be economically justified. If, however, local interests enter into an agreement among themselves as to the method of operating the reservoirs for

conservation, subject to flood-control priority, as provided for in your report, the question of whether provisions should be made in the proposed reservoirs for possible future power should be reviewed further at definite project stage.

EXCEPTIONS TO EXAMINER'S DECISION

[5731] EXCEPTION NO. 1

Exception is taken to the Examiner's treatment of House Document 650, 78th Congress, 2nd Session, as a "revised 308 report", on the theory that it had been submitted by the Chief of Engineers pursuant to resolutions of committees of the Congress requesting a review of the 308 report previously issued (Dec. p. 13), that it merely contained an inventory of possible developments in the Roanoke River basin to be carried out by Federal or non-Federal interests, or both, and that its purpose was merely to assist the Congress in determining whether any of the projects should be undertaken with public funds (Dec. pp. 44–5).

We propose that the following facts be found by the Commission:

(a) By section 7 of the Flood Control Act of 1936 (49 Stat. 1576) and by section 6 of the Flood Control Act of 1938 (52 Stat. 1215), the Secretary of War (hereinafter referred to as the "Secretary of the Army") was authorized and directed to make surveys, studies, and reports at local-[5232]ities on the Roanoke and Tar Rivers and on the Smith River and its tributaries in Virginia and North Carolina where, "according to the surveys and estimates already made, opportunities appear to exist for useful flood control operations with economical development of hydro-

electric power wherever sufficient markets to absorb such power become available".

(b) On August 28, 1940, the Committee on Flood Control of the House adopted a resolution requesting the Board of Engineers for Rivers and Harbors to review the previous report (House Document No. 65, 74th Congress, 1st Session) on Roanoke River, Va. and N. C., with the view to determining "whether any improvements in the interests of flood control and allied purposes are advisable at this time". A similar resolution was adopted by the House Committee on Rivers and Harbors on January 26, 1942 (Exhibit 1, p. 12).

(c) Pursuant to the directives in the 1936 and 1938 Flood Control Acts, and to the request of these committees (Exhibit 1, p. 12), the Corps of Engineers embarked upon a study and investigation, and the Chief of Engineers submitted a report, known as House Document 650, 78th Congress, 2nd Session, which included a comprehensive plan for the development of the water resources of the Roanoke River basin.

* * * * *

[5748] EXCEPTION NO. 2

Exception is taken to the Examiner's conclusion that "the Department of the Army does not regard its report comprising House Document No. 650 as a recommendation that all of the units of the Roanoke River comprehensive development plan be constructed, operated and maintained by the Federal Government" (Dec. p. 44).

It is recommended that the Commission find as follows:

[5749] (a) The District Engineer in charge of the investigation of the Roanoke River basin recommended a comprehensive plan of development consisting of 11 dams and reservoirs, of which eight were to be constructed on the Roanoke River, two were to be constructed on the Smith River, and one was to be constructed on the Dan River. The three most downstream units were to consist of dams and reservoirs at Buggs Island, Gaston, and Roanoke Rapids. He recommended that the plan be carried out by the United States with Federal funds, and that the projects be constructed in a given sequence, with Buggs Island on the Roanoke River and Philpott on the Smith River as the initial step in the development, to be followed by the construction of the dams and reservoirs at Gaston and Roanoke Rapids, as the next steps in the development (Exhibit 1, pp. 61–3, 68–9, 73–6, 79–89).

(b) On June 22, 1943, the Division Engineer endorsed the recommendations of the District Engineer. He approved not only the physical plans for the various project units but also the comprehensive plan as a single project to be undertaken by the United States, and to be carried out on a step-by-step basis (Exhibit 1, p. 90).

(c) The report of the District Engineer and the endorsement thereof by the Division Engineer were reviewed by the Board of Engineers for Rivers and Harbors. This Board approved the comprehensive plan of development and recommended its adoption, after having found that this comprehensive plan of improve-

ment for hydroelectric power, flood control, navigation, and other uses provided the best plan for the development of the water resources of the Roanoke River basin. The Board not only reviewed the physical plans for the structures constituting the entire plan of development, but also recommended that the entire plan be accomplished by the United States, with Federal funds, on a step-by-step basis, with Buggs Island and Philpott as the initial step and with "the other units of the plan to be constructed progressively at such rates as future developments may indicate desirable" (Exhibit 1, pp. 9–10).

(d) On May 22, 1944, the Chief of Engineers transmitted his report to the Committee on Flood Control of the House of Representatives, setting forth his findings and recommendations. After stating that the Board of Engineers for Rivers and Harbors had concurred with the District and Division Engineers and had found that the comprehensive plan consisting of 11 developments [5750] (including Roanoke Rapids) for hydroelectric power, flood control, navigation, and other uses was economically justified and provided the best plan for the development of the water resources of the Roanoke River basin, the Chief of Engineers found that "the comprehensive plan as recommended by the Board provided for the optimum development of the water resources of the basin". He also found that "to safeguard the interests of navigation and flood control, the dams and power facilities should be constructed, operated and maintained under the direction of the Secretary of War and supervision of the Chief of Engineers".

He accordingly recommended that "the general plan of development outlined in the report of the District Engineer be adopted as a basis for improvement, step by step, of Roanoke River and its tributaries for flood control, navigation and other purposes, and that the Buggs Island and Philpott projects be authorized for construction as the initial step * * *". Thus his report covered not only the physical plan of the structures, but also recommended that the entire comprehensive plan be undertaken on a step-by-step basis by the United States, with Federal financing, including the construction, operation, and maintenance of the comprehensive plan as a whole (Exhibit 1, pp. 1–2).

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[5762] EXCEPTION NO. 3

Exception is taken (a) to the Examiner's treatment of the first paragraph of section 10 of the Flood Control Act of 1944 as "a lengthy statement of purpose (from which we cannot derive much aid in the determination of the jurisdictional question)" (Dec. p. 14), and (b) to the Examiner's treatment of the paragraph of section 10 entitled "Roanoke River Basin" as a mere approval of the comprehensive basin plan to be undertaken if and when the development by the United States of any of the projects therein appears desirable, with the understanding, however, that if, in the meantime, non-Federal interests are willing to undertake the development of any of the proposed sites, they may do so under a license from the Federal Power Commission (Dec. pp. 30–32).

We propose that the Commission find and hold as follows:

(a) On December 22, 1944, the President approved H. R. 4485, 78th Congress, 2nd Session, which became the Flood Control Act of 1944. In the first paragraph [5763] of section 10 of this Act, Congress made the following provisions:

(i) It "adopted and authorized" a large number of works of improvement for the benefit of navigation, flood control, and other purposes in the interests of the national security and with a view toward providing an adequate reservoir of useful and worthy "public works" for the postwar construction program.

(ii) These works of improvement, enumerated in the subsequent paragraphs of this section, were to be prosecuted under the direction of the Secretary of the Army and the supervision of the Chief of Engineers in accordance with the plans in the reports designated in this section and subject to the conditions set forth in the respective reports.

(iii) The Department of the Army was authorized to prepare the necessary plans and specifications and to do the preliminary work with funds appropriated or to be appropriated for flood control, so as to be ready for the rapid inauguration of a postwar construction program.

(iv) After the then existing critical situation with respect to materials, equipment, and manpower no longer existed, and in any event not later than immediately following the cessation of hostilities in World War II, the projects therein enumerated were to be initiated as expeditiously and

prosecuted as vigorously as might be consistent with budgetary requirements.

(b) Among the public works thus adopted and authorized was the comprehensive plan for the development of the Roanoke River basin recommended by the Chief of Engineers in House Document 650:

(i) Congress approved this entire plan and, at the same time, authorized the construction of the Buggs Island and Philpott project units as the initial step at an estimated cost of $36,000,000.

(ii) By approving the comprehensive plan, Congress legally sanctioned this plan to be undertaken in accordance with the policies and purposes set forth in section 2 of the Flood Control Act of 1944; namely, that the improvement of [5764] the Roanoke River basin shall be "under the jurisdiction of and shall be prosecuted by the War Department under the direction of the Secretary of War and supervision of the Chief of Engineers".

(iii) By thus approving the comprehensive plan for the development of the Roanoke River basin, Congress has reserved the development of these water resources to be undertaken by the United States itself.

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[5779] EXCEPTION NO. 4

Exception is taken (a) to the Examiner's finding that the project proposed by the Applicant "is in harmony with the approved comprehensive plan" (Dec. p. 79, par. (10)), and that "the project proposed is best adapted to the Congressionally approved comprehensive plan" (Dec. p. 71 [5780] par. (11)); and (b) to his refusal to strike from

the evidence Exhibit 11 and all testimony relating thereto.

It is proposed that the Commission find as follows:

(a) There is no evidence that the comprehensive plan approved by Congress in Section 10 of the Flood Control Act of 1944 has been modified as to the requirement that all the project units, including Roanoke Rapids, be constructed, operated, and maintained by the Department of the Army with Federal funds, and

(b) The only evidence which would be competent to show that the Congressionally approved plan has been modified would be an Act of Congress repealing or amending the pertinent provisions of section 10 of the Flood Control Act of 1944.

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[5790] EXCEPTION NO. 5

Exception is taken to the Examiner's conclusion that Congress has not reserved the Roanoke Rapids project for development by the United States and that the Commission still has jurisdiction to issue a license for this project (Dec. p. 50).

It is recommended that the Commission conclude as follows:

[5791] Since Congress has reserved the Roanoke River basin, including the Roanoke Rapids site, for development by the United States, the Commission is without power to make any other disposition of this project site by granting a license for non-Federal development.

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[5798] EXCEPTION NO. 6

Exception is taken to the Examiner's findings that there is no basis in the record for the assumption "that the United States will in fact build Roanoke Rapids within some reasonable, foreseeable time, if no license is issued to a private or non-Federal interest"; that "the contrary appears to be the fact"; that "the probabilities are that so far as the United States is concerned, the water resources at Roanoke Rapids are destined to be undeveloped and unutilized"; that "it is apparent that energy from the Roanoke Rapids project will not be available for many years, if ever, should this project be left undeveloped with a view to eventual construction by the United States itself"; and that "even if non-Federal interests did not undertake the consideration of any of the elements of the over-all plan, it may be as long as 10 or 15 years before Roanoke Rapids would be built" (Dec. pp. 54, 60).

It is recommended that these findings be rejected.

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[5801] EXCEPTION NO. 7

Exception is taken to the Examiner's treatment of the Commission's concurrence in the plan of the Army Engineers (Dec. p. 13) as a mere expression of a view "in a general way" that the development of the water resources of the Roanoke River basin was desirable at the earliest practicable date, there being no determination by the Commission that such resources should neces-

sarily be developed by the United States (Dec. p. 56).

It is recommended that the Commission find as follows:

(a) Before submitting his report to the Congress, the Chief of Engineers transmitted the reports of the District Engineer, the Division Engineer, and the Board of Engineers for Rivers and Harbors to the Federal Power Commission.

[5802] (b) On May 3, 1944, the Commission, through its Chairman, addressed a letter to the Chief of Engineers, stating that it concurred in the conclusion of the Board of Engineers for Rivers and Harbors that the comprehensive development of the Roanoke River basin in general accordance with the plans prepared therefor by the District Engineer, consisting of 11 dam and reservoir projects with power, was desirable, and that the Buggs Island and Philpott projects would constitute a desirable initial step in this development (Exhibit 1, pp. 2–4).

(c) The concurrence of the Commission in the conclusion of the Board included concurrence in the Board's findings and recommendations that the comprehensive plan of development was the best plan for the development of the Roanoke River basin; and that it should be undertaken by the United States on a step-by-step basis, with Buggs Island and Philpott as the initial step in the development, to be followed by Gaston and Roanoke Rapids.

(d) By its letter of May 3, 1944, the Commission expresssed its judgment that the development of the water resources of

the Roanoke River basin, including Roanoke Rapids, should be undertaken by the United States.

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[5805] EXCEPTION NO. 8

Exception is taken to the following statement in the Examiner's Decision (Dec. p. 49–50):

> True, the letter approved the comprehensive plan of the Army Engineers (with certain suggestions for design modifications) as a plan for an efficient physical [5806] development of the Roanoke River Valley for the purposes prescribed by law; but the comprehensive plan was not this Commission's plan developed from its own "examinations, surveys, reports, plans, and estimates of cost," as would have been true if the Commission had acted under Section 7 (b). And, there has been no submission of a finding and recommendation to Congress by the Commission that the United States itself should undertake the development of the Roanoke Rapids site. The May 3, 1944 letter was clearly a reply to a letter from the Chief of Engineers requesting "comments". It is obvious that Section 7 (b) calls for submission of findings and recommendations directly to Congress (usually with respect to a particular or individual development for which a license is sought) and not in the form of comments on a comprehensive plan covering an entire river basin, which has been proposed by others. The Commission's letter was not addressed either to the Congress or to an officer or a Committee of the Congress. There is a presumption, which has not been overcome,

that the Commission performs its function in accordance with the directives in the laws it administers and not indirectly or covertly.

It is proposed that the Commission should find and hold as follows:

(a) The prohibition in Section 7 (b) of the Federal Power Act attaches whenever the Commission arrives at a judgment that the development of water resources should be undertaken by the United States. Such judgment may be arrived at in connection with a proceeding for a license, or in connection with any other functions of the Commission, including its cooperative relationships to the Department of the Army under Section 4 (c) of the Federal Power Act, as was done in the Commission's letter of May 3, 1944 to the Chief of Engineers with respect to the Roanoke River basin.

(b) The fact that the comprehensive plan for the development of these water resources was not the Commission's own plan, but was the result of examinations, surveys, and estimates of cost made by the Corps of Engineers, is immaterial.

(c) Since the examinations, surveys, and estimates of costs had already been made by the Corps of Engineers, it was not necessary for the Commission to duplicate the work of the Corps of Engineers and make its own examinations, surveys, and estimates of cost.

(d) The Commission, having concurred in the recommendations of the Army Engineers, and its comments thereon having been submitted by the Chief of Engineers to Congress, which [5807] approved the plan with the recommendations of the Commission before it, it was not necessary

for the Commission to submit its findings and recommendations to Congress.

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[5810] EXCEPTION NO. 9

Exception is taken to the Examiner's failure to find that granting the license applied for would materially and adversely affect the [5811] development of the water resources of the Roanoke River basin by the United States.

It is proposed that the Commission find as follows:

The Applicant's proposed project would affect the comprehensive plan for the Roanoke River basin recommended by the Chief of Engineers, and concurred in by the Commission, in the following particulars:

(a) The withdrawal of the Roanoke Rapids unit from the comprehensive plan would decrease the feasibility of the plan and would reduce its net power benefits by an amount in excess of $1,500,000 per year, or $75,000,000 over the usual 50-year period of the license (Exhibit 1, page 68, Exhibit 53, and Exhibit 54).

(b) The Applicant's proposed project, with a full elevation of 132 feet, would backwater up against the Gaston unit of the comprehensive plan, thus reducing its capacity or requiring additional expenditures by the United States for the Gaston project.

(c) The withdrawal of the Roanoke Rapids unit from the comprehensive plan would substantially diminish the amount, and would increase the cost, of the power and energy available to the Secretary of the Interior for disposal pursuant to Sec-

tion 5 of the Flood Control Act of 1944.

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[5834] EXCEPTION NO. 10

Exception is taken to the Examiner's failure to hold that the findings and recommendations of the Chief of Engineers in House Document 650 were supported by evidence, were not arbitrary or unreasonable, were concurred in by the Commission, were submitted to and approved by Congress, and that, in these circumstances, it would not be within the limits of the Commission's administrative discretion to approve the application.

It is recommended that the Commission hold as follows:

> The findings of the Chief of Engineers in H. D. 650, 78th Congress, 2nd Session, are supported by the facts yielded by the examinations and surveys made by the District Engineer, whose findings and recommendations were concurred in by the Division Engineer, and by the Board of Engineers for Rivers and Harbors. The Commission, upon information furnished by its Staff, concurred in the recommendations of the Board of Engineers for rivers and harbors and suggested additional modifications. The recommendations of the Commission were presented to Congress by the Chief of Engineers who made his findings "after due consideration of these reports and the comments of the Federal Power Commission," and recommended that "the authorization should be broad enough to permit the changes suggested by the Federal Power Commission". Upon these representations made by the Chief of

Engineers, Congress approved the general plan for the comprehensive development of the Roanoke River basin. In these circumstances, it would not be within the limits of the Commission's discretion to do any act which either expressly or by implication would be inconsistent with or would reverse or set aside the Congressional approval of the findings and recommendations of the Chief of Engineers.

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[5838] EXCEPTION NO. 11

Exception is taken to the Examiner's failure to find that granting VEPCO's application would involve surrender of net power assets of the United States in an amount in excess of $1,500,000 per year, or in excess of $75,000,000 over the usual 50-year period of a license; in holding that the United States would be fully reimbursed by the payment of headwater benefits in the sum of $250,000 per year, or $12,500,000 over the usual 50-year license period (Dec. p. 45–6; Sup. Dec. p. 35); and in failing to hold that the Commission should not give away these assets of the United States.

It is recommended that the Commission find and hold as follows:

(a) The Roanoke Rapids site derives its value for power development largely from the upstream Buggs Island project. Because of this unit in the comprehensive plan, the net power benefits of the Roanoke Rapids unit in that plan, based on 1948 estimates, is $1,518,000 per year (Exhibit 54), or in excess of $75,000,000 over a

period of 50 years. These are potential power assets of the United States.

(b) To grant a license to the Applicant to construct a project at Roanoke Rapids would deprive the United States of these assets and turn them over to the Applicant without equivalent compensation.

(c) The Commission should not thus dispose of assets of the United States.